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PRACTICE. PART I.

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A

COMPEND

OF THE

PRACTICE OF MEDICINE.

BY

DAN'L E. HUGHES, M.D.,

DEMONSTRATOR OF CLINICAL MEDICINE IN THE JEFFERSON MEDICAL COLLEGE OF PHILADELPHIA; FELLOW OF THE COLLEGE OF PHYSICIANS OF PHILADELPHIA, ETC.

SECOND EDITION, REVISED AND ENLARGED.

IN TWO PARTS.

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PHILADELPHIA:
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No. 1012 WALNUT STREET.
1885.

TO
HIS ESTEEMED FRIEND AND TEACHER,
J. M. DA COSTA, M.D.,
PROFESSOR OF THE PRACTICE OF MEDICINE
IN THE
JEFFERSON MEDICAL COLLEGE,
THIS WORK
IS RESPECTFULLY DEDICATED BY
THE AUTHOR.

PREFACE.

This "Compend" is the outgrowth of the author's system of notes, as employed in the Quiz-room during the past four years.

Written for students of medicine, it has been his aim to present, in as compact a form as is consistent with clearness and completeness, the most essential features of the Practice of Medicine.

From the inability of students to follow the lectures by reading large text-books, it is believed that this Compend will be a valuable aid in the acquisition of the fundamental facts, although it is not to be considered as a substitute for the more elaborate treatises upon the subject—they are to fully teach, this only to remind, the student.

It may be regarded as a full set of notes upon the Practice of Medicine, and as such, it is hoped, will prove far more valuable and satisfactory than the ordinary imperfect and hurriedly taken notes.

Free reference has been made to the works and writings of Professors DaCosta, Bartholow, Flint, Reynolds and Roberts, acknowledgment of which is made here, in place of by foot notes on the different pages.

D. E. H.

Philadelphia, September, 1883.

PREFACE TO THE SECOND EDITION.

The exhaustion of a large edition of the "Compend" has imposed on me the necessity of preparing a second edition. I have accordingly given to the whole of it a careful revision, incorporating the more recent improvements in practice. Many additions have been made, and parts have been entirely rewritten, thereby adding considerably to the size of the book.

I take this opportunity to express my sincere appreciation of the favor with which the "Compend" has been received.

D. E. H.

August, 1885.

CONTENTS.

PART I.

COMPEND

OF THE

PRACTICE OF MEDICINE.

PART I.

INTRODUCTION.

The Practice of Medicine embraces all that pertains to the knowledge of, prevention and cure of, the diseases which the physician is called upon to treat.

Disease may be defined as a deviation or alteration in the functions, properties or structure of some tissue or organ, whereby its office is no longer performed in accordance with the natural standard; *Organic*, when associated with an organic change in the affected part; *Functional*, when the phenomena are independent of any structural lesion. The study of disease, whether organic or functional in character, is termed *Pathology*.

Pathology explains the *origin*, *causes*, *clinical history* and *nature* of the morbid conditions to which the economy is liable.

Ætiology, or the causes of disease, are twofold, to wit: *Predisposing* and *Exciting*.

Predisposition to disease signifies a special liability or susceptibility to its occurrence, and may be either *hereditary* or *acquired*.

Hereditary predisposition to certain diseases is also called *Diathesis*, to wit: the offspring of phthisical parents are said to be of a Phthisical Diathesis.

Diathesis is a morbid constitution, predisposing to the develop-

ment of a particular disease, and may be either inherited or acquired.

Acquired predisposition is such as arises from

I. *Habits*, to wit: Strain upon the nervous system resulting in nervous diseases.

II. *Age*, to wit: Children are very liable to catarrhal disorders.
Young adults, to fevers, perverted sexual disorders, etc.
Middle age, to heart and digestive disorders, cancer, etc.
Old age, to degeneration of the vessels and heart.

III. *Occupation*, to wit: Miners, weavers and cutlers, lung diseases.

IV. *Sex*, to wit: Women, emotional nervous diseases.
Men, as more exposed, rheumatism, pneumonia, etc.

V. *Race*, to wit: Negro, phthisis and scrofula; exempt from malaria.

Exciting causes of disease are divided into those acting from *within* and those acting from *without*.

Causes from *within* are the *emotions*, *passions*, etc., to wit: fear *may* produce chorea; anger has caused jaundice; worry, heart troubles.

Causes from *without* are *food*, *air* and *light*.

The Clinical History of disease includes all the symptoms and signs which may occur from the *period of incubation* until its final *termination*.

Symptoms are such alterations of the healthy functions that give evidence of the existence of a diseased condition or perverted function, and may be either *objective* or *subjective*. *Objective*, when evident to the senses of the observer, as redness or swelling. *Subjective*, when felt by the patient, as pain or numbness.

The Period of Incubation is the interval between the entrance of the poison into the system and its manifestations, and seldom presents recognizable symptoms.

The Prodromes are the earliest recognizable symptoms; as the rigors or chill during the invasion of fever, and the various aura preceding an epileptic fit.

Acute disease is one in which the invasion is rapid, and, as a rule, severe; when the symptoms develop less rapidly and are less intense the disease is said to be *subacute*; when gradual or slow in development the disease is said to be *chronic*.

Pathognomonic is the term applied to such symptoms as belong to one particular disease, and are therefore characteristic of it, to wit: the rusty sputum of pneumonia.

Physical signs are, strictly speaking, *objective* symptoms.

The Termination of a diseased action may occur in one of three ways, to wit: *Cure*, *Secondary Processes*, or in *Death*.

Cure may occur by

I. *Lysis*, or slow return to health.
II. *Crisis*, abruptly, with a critical discharge.
III. *Metastasis*, or changing from one location to another.

Secondary processes is when the diseased action is substituted by a new morbid process, to wit: Rheumatism followed by endocarditis; apoplexy by cerebral softening.

By *Death* is meant a complete cessation of tissue change occurring by

I. *Asthenia*, or an ever increasing debility, to wit: phthisis, cancer, Bright's disease.
II. *Anæmia*, or insufficient quantity or quality of blood.
III. *Apnœa*, or non-aeration of blood, to wit: acute lung diseases, or croup.
IV. *Coma*, death beginning at the brain, to wit: uræmia, narcotic poisoning, cerebral hemorrhage.

Morbid or Pathological Anatomy is the knowledge of diseased structure or tissue changes.

Diagnosis of disease implies a complete, exact and comprehensive knowledge of the case under consideration, as regards the origin, seat, extent and nature of all the morbid conditions.

A direct diagnosis is made when the morbid condition is revealed by a combination of clinical phenomena, or some one or more pathognomonic symptoms.

A differential diagnosis is the result when the diseases resembling each other are called to mind and eliminated from each other.

A diagnosis by exclusion is by proving the absence of all diseases which might give rise to the symptoms observed, except one, the presence of which is not actually indicated by any positive symptoms.

Prognosis of disease is the ability or knowledge to foretell the most probable result of the condition present, and involves an amount of tact or knowledge only acquired by prolonged experience.

Treatment. The ultimate and most important object of the study of medicine, in a practical point of view, is to learn how to

cure, relieve, or *prevent* disease, and it must be borne in mind that this *does not consist solely in the administration of medicine*, but requires strict and faithful attention to *diet* and *hygiene*.

When the object is to prevent disease, to wit: smallpox by vaccination, it is called *Prophylactic or Preventive* treatment.

When disease is to be broken up, although already begun, to wit: aborting the chill of malaria, it is called *Abortive* treatment.

When the disease is allowed to run its natural course without attempting its removal, but being constantly on the alert for obstacles to its successful issue, to wit: the generally adopted plan of treating continued fevers, it is called *Expectant* treatment.

When the disease is incurable, and removal of marked suffering is the indication, it is called *Palliative* treatment.

When marked weakness and prostration are to be overcome, it is called *Restorative* treatment.

FEVERS.

Fever is a condition in which there are present the phenomena *of rise of temperature, quickened circulation, marked tissue-change* and *disordered secretion*.

The *primary cause* of the fever phenomena is a disorder of the sympathetic nervous system giving rise to disturbances of the vaso-motor filaments.

Rise of temperature is the pre-eminent feature of all fevers, and can only be positively determined by the use of the thermometer. The term *feverishness* is used when the temperature is 99° to 100° Fahr.; *slight fever if* 100° or 101°; *moderate* 102° or 103°; *high* if 104° or 105°; and *intense* if it exceed the latter.

Quickened circulation is the rule in fevers, the frequency usually maintaining a fair ratio with the increase of the temperature. A rise of *one* degree Fahr. is usually attended with an increase of *eight* beats of the pulse per minute.

The tissue waste is marked in proportion to the severity and duration of the fever phenomena, being slight or nil in febricula, and excessive in typhoid fever.

The disordered secretions are manifested by the deficiency in the

salivary, gastric, intestinal and nephritic secretions, the tongue being furred, and the mouth clammy, anorexia, thirst, constipation, and scanty, high-colored, acid urine.

An **Idiopathic** or **Essential** fever is one in which no local affection causes the fever phenomena, although lesions may arise during its progress.

A **Symptomatic** or **Secondary** fever is one dependent upon an acute inflammation.

GENERAL TREATMENT OF FEVERS.

1. Reduce the temperature. The cold bath or cold pack will do this most decidedly, but entails much labor and is not altogether free from danger, and so its use is advised only in severe cases. Cool sponging is of decided advantage. *Quinina*, in gr. xx doses repeated, is usually reliable. *Antipyrin*, gr. xx repeated, also recommended.

2. Lessen the circulation. If the pulse is full, strong, and rapid, use *aconitum*. If the circulation is weak, either *stimulants* or *digitalis*, or both.

3. Attend to the secretions. Remove the waste of the tissues by diuretics, diaphoretics, and, if particularly indicated, laxatives. The free use of water is beneficial in promoting the various secretions.

4. Nourish the patient. "Don't starve a fever." Administer milk, beef-tea, and other light nutritious food, in small quantities, but at frequent intervals.

CONTINUED FEVERS.

All continued fevers are characterized by a steady progress of the febrile movement, without either a too decided rise or fall in the temperature to modify the impression of a continuous action.

SIMPLE CONTINUED FEVER.

Synonyms. Irritative fever; febricula; ephemeral fever; synocha.

Definition. A continued fever, of short duration, mild in character, not due to a specific cause, rarely fatal, but when death does occur, presenting no characteristic lesion.

Causes. Fatigue, mental and physical; exposure to heat; excesses in eating and drinking; excitement and violent emotion. Most common in childhood.

Symptoms. An abrupt feeling of *lassitude*, followed by a decided *chill* or *chilliness*, a sudden and rapid *rise of temperature*, quick, *tense pulse*, *headache*, *dry skin*, *intense thirst*, *coated tongue*, and *scanty*, *high-colored urine*. Cases due to errors in diet are accompanied by *nausea* and *vomiting*; those in childhood, due to excitement, fright or emotions, may have *slight convulsions*. The *temperature* may, within an hour or two, reach *103° F.* or more, when slight *delirium* may occur.

Duration. From twenty-four hours to six or seven days. Never exceeding ten days.

Termination. Within a few hours, to a day, the temperature rapidly falls to the norm—(*crisis*); or it may continue for several days gradually falling—(*lysis*). *Herpes* about the lips and nostrils are often observed at the close of an attack. *Convalescence* is rapid.

Diagnosis. Unless the fever can be attributed to some one of the causes that give rise to it, a doubt as to its character may exist for the first twenty-four hours, after which time it can hardly be mistaken for any other disease.

Prognosis. Recovery, without sequelæ, the rule.

Treatment. Very little medicine. Rest in bed. A full dose of *hydrargyri chlorid. mite*, or *an enema*, *sponging* the surface with cold water, and the administration of *saline diaphoretics* and *diuretics*. If there is great arterial excitement *aconitum* may be added. Light liquid diet is most agreeable. Cases in which the nervous symptoms are prominent do well on Fothergill's "fever mixture of the future," to wit:—

℞. Acid. hydrobrom ..... f℥ ss–j
Syr. simplicis..... ..... f℥ ss–j
Aquæ ..... f℥ ij–iij. M.
SIG.—Every four hours.

Quininæ sulphas in tonic doses during convalescence.

CATARRHAL FEVER.

Synonyms. Influenza; epidemic catarrhal fever; contagious catarrh.

Definition. A continued fever, occurring generally as an *epidemic*; due to a specific cause; characterized by a catarrhal inflammation of the respiratory organs, and sometimes of the digestive; always accompanied by nervous phenomena and marked *debility*.

Causes. A specific *vegetable germ*, uninfluenced by soil, climate or atmospheric changes.

Symptoms. The onset is sudden, a *chill* followed by *fever*, the temperature reaching 101° to 103°, a *quick, compressible pulse*, and severe *shooting pains* in the eyes, frontal sinuses, joints and muscles. The chill and fever are rapidly followed by *chilliness along the spine, pain* in the *throat, hoarseness, deafness, coryza, sneezing, injected, watery eye*, and a dry, irritative, *laryngeal cough*, sometimes becoming *bronchial*. The *tongue* is furred, there is *anorexia*, epigastric distress, *nausea, vomiting*, and ofttimes *diarrhœa*. In some epidemics the digestive symptoms are the most prominent, when *dysentery* may occur.

The above symptoms are always associated with decided *weakness* and *debility*. Delirium is rare, but marked *hebetude* and *cutaneous hyperæsthesia* are common.

Duration. Four to seven days, with protracted convalescence. Relapses frequently occur.

Complications. Lobar or catarrhal pneumonia frequently occurs, which adds to the gravity of the attack. The *cough* may outlast the disease several weeks.

Diagnosis. Isolated cases may be mistaken for a "bad cold." But when epidemic, the *sudden onset, marked general catarrh* and *decided prostration* should prevent error.

Prognosis. Recovery is the rule when it occurs in the healthy and vigorous. *Grave* when the very young, very old, or those suffering from organic disease, such as Bright's disease, fatty heart, or emphysema, are attacked.

Treatment. No specific. *Support* the system and treat indications. The *catarrh, pains* and *cough* are at least ameliorated by the following :—

℞. Quininæ sulph..... grs. ij–iv
Morphinæ sulph..... gr. $\frac{1}{24}$
Aquæ lauro-cerasi..... ℥j. M.
SIG.—Every four hours.

and the frequent inhalation of *tinct. benzoin. comp.*, ℥ss–j., *aquæ bul.* Oj.

If the *bronchial* symptoms become troublesome, use—

℞. Ammonii muriat..... grs. x
Mist. glycyrrh. comp..... ℥ij. M.
p. r. n.

Should *Pneumonia* occur treat as an ordinary case, but *never* depress.

TYPHOID FEVER.

Synonyms. Enteric fever; gastric fever; nervous fever; entero-mesenteric fever; abdominal typhus.

Definition. An acute, self-limited, *febrile* affection, due to a *special poison;* characterized by insidious prodromes; epistaxis; dull headache followed by stupor and delirium; red tongue, becoming dry, brown, and cracked; tympany, abdominal tenderness, and early diarrhœa; a peculiar eruption upon the abdomen; rapid prostration and slow convalescence; a *constant lesion* of Peyer's patches, the mesenteric glands and the spleen.

Causes. Predisposing and Exciting. *Predisposing* are *Age*, to wit, young adults; and *Season*, to wit, a hot and dry autumn.

The *Exciting* cause is a *special typhoid germ.* The poison usually results from the *decomposition* of *typhoid stools*, although it has been demonstrated that the disorder may be generated under certain undetermined circumstances, *de novo*, from ordinary filth and decomposition. Klebs claims to have identified a specific "typhoid bacillus."

Pathological Anatomy. The characteristic lesions of typhoid fever consist in certain changes in the *Peyerian patches* and *solitary glands*, which may be divided into well defined stages, to wit: I. *Swelling* from proliferation of their cellular elements. II. *Sloughing and Ulceration.* III. *Cicatrization*, or in rare cases, *Perforation.*

The *Mesenteric glands* become infiltrated, enlarged and softened, but seldom ulcerate.

The *Spleen* also enlarges and softens. There is besides, *parenchymatous degeneration* or *granular changes* in all the tissues of the body.

Symptoms. *Stage of Prodromes*—The onset is insidious, with *malaise*, vertigo, headache, disordered digestion, disturbed sleep, *epistaxis*, depression, and muscular weakness, followed by a *chill* or *chilliness.*

First Week dates from onset of the fever, when are present *increasing temperature, frequent pulse, coated tongue, nausea, diarrhœa, headache*, and upon the *seventh day a few reddish spots resembling* flea bites appear upon the abdomen, chest or back.

Second Week, the foregoing symptoms are exaggerated; *fever* continuous, frequent and *compressible pulse*, tympanitic *tender abdomen, gurgling in the right iliac fossæ, nocturnal delirium*, severe and constant *headache* and *stupor*, a short *cough*, with distinct *bronchial râles*

on auscultation, irregular muscular contractions (*subsultus tendinum*), *sordes* upon the teeth and lips, the *diarrhœa* continuing.

Third Week. *Fever* changes from continuous to remittent; the evening exacerbations continue as high as the preceding week, and all the symptoms remain about the same until near the end of the week, when they ameliorate.

Fourth Week. The fever decidedly remits; almost normal in morning, the pulse becoming less frequent and more full, the tongue gradually becoming clean, the abdomen lessens in size, the diarrhœa ceases, the patient passing into a slow convalescence, greatly emaciated, which condition may continue for several weeks.

Analysis of Symptoms. *The temperature record of typhoid fever is a characteristic one.* The fever on the morning of the first day may be stated at 98.5° F., evening 100.5°; second morning 99.5°, evening 101.5°; third morning 100.5°, evening 102.5°; fourth morning 101.5°, evening 103.5°; fifth evening 104.5°. From that time until end of the second week, the evening temperature ranges between 103° and 105°, the morning temperature being a degree or more lower.

Diarrhœa is the principal intestinal symptom; if absent, the lesion is slight. The stools are at first dark, but early in the second week they become fluid, offensive, *ochre-yellow*, resembling "pea soup," and may be streaked with *blood*. They number from *three* to *fifteen* in the twenty-four hours.

Eruption is almost constant. Consists of from *five* to *twenty* small, *rose-colored spots* on the *abdomen*, *chest* or back, sometimes on the limbs, appearing in crops, lasting about *five days*, *disappearing on pressure* and at *death*. *Returning with relapses.* *Eruption* day from the *seventh* to the *ninth*.

Rarely spots of a delicate *blue* tint—the "taches bleuâtres" of French authors—are observed.

Nervous symptoms are, pronounced *headache*, early and severe. *Dullness* soon following, passing into *drowsiness* and *stupor*, with great *prostration*. *Deafness* pronounced. *Sight* impaired, in grave cases double vision. *Delirium* low and muttering, generally pleasant in character, always present in marked cases.

Convalescence protracted. Great debility and anæmia, causing pronounced *sweating*.

Complications. *Intestinal hemorrhage* may occur from the fourteenth to the twentieth day; a sudden decline of the temperature to the

norm or below precedes the passage of blood by stool. The hemorrhage is due to the erosion of a vessel during the ulcerative action.

Perforation makes the case almost hopeless. *Peritonitis* without perforation adds to the gravity, but not necessarily fatal. *Lobar pneumonia, hypostatic congestion* and *bronchitis* are frequent occurrences. *Albuminuria* may occur, as may *phlegmasia dolens.*

Relapses common. The symptoms all return abruptly; duration half the time of the original attack; occur at the end of the fourth or beginning of the fifth week. Not so fatal as might be expectcd.

Diagnosis. The *typhoid condition* differs from typhoid fever, in the absence of *diarrhœa, eruption,* and *the characteristic temperature* record.

Enteritis has intestinal disorders alone.

Peritonitis, abdominal symptoms only, with constipation.

Acute miliary tuberculosis often mistaken for typhoid fever.

Meningitis lacks the intestinal symptoms and fever record.

Prognosis. A positive one cannot be made. Favorable indications are constipation, slight diarrhœa, low temperature and moderate delirium.

Treatment. *No specific.* Intelligent nursing; pure air; quiet; *disinfecting* the *urine* and the *stools*; liquid diet at intervals of every *two* or *three hours.*

The following remedies have advocates, claiming that they modify the course of the disease; to wit: *Hydrargyrum, iodum, acidum carbolicum, mineral acids, argent. nitras,* and *ergota.*

The *acid treatment* consists in the administration of *acidum nitrohydrochloricum dilutum,* ♏ x–xx, well diluted, every four hours.

The present popular so-called "specific treatment" of this disease consists in the administration every second evening, until four doses are taken, of *hydrargyri chlor. mite,* gr. vij–x, which seemingly lessens the frequency of the stools in the later stages of the attack, although slightly increasing them at the time. Also administering from the beginning of the attack—

℞. Tinct. iodi..... ℥ij
Acid carbol. liq..... ..... ℥j. M.

SIG.—One, two or three drops in ice water, every two or three hours, after food.

To reduce the temperature, cold bath, cold pack, and cold sponging, *quininæ sulph.,* gr. xv–xx, repeated within an hour, or *antipyrin,* gr. xx, repeated.

Diarrhœa should not be checked unless it exceeds *three stools* in twenty-four hours, when may be used—

℞. Bismuth subnit..... gr. xx
Acid carbol..... gtt. j
Tinct. opii deodorat..... gtt. x–xv
Mucil. acaciæ..... ℥j
Aquæ..... ℥iij. M.

Sig.—Every three or four hours.

Or—

℞. Cupri sulph..... gr. ⅛
Extracti opii..... gr. ¼. M.

Sig.—In pill, every four hours.

For *Tympanites;* cold compresses or turpentine stupes to the abdomen, or ℞. *ol. terebinthinæ*, gtt. x, *morphinæ sulph.*, gr. $\frac{1}{20}$, in emulsion, every third hour, or *tinct. nucis vomicis*, gtt. x, *p. r. n.*

For *Thirst;* cooling drinks, in moderation, or pellets of ice slowly dissolved in the mouth.

Headache; cold to the head, mustard to the neck, and foot baths; if these fail to relieve, *morphina* or *atropina* hypodermatically.

Delirium; if from debility, increase stimulants; other causes, *morphina.*

Restlessness and *coma vigil; chloral* alone or with *potassii bromidum* or *morphina.*

Debility; food every *two* or *three* hours; don't permit sleep to interfere with nourishment. *Stimulants* are indicated early; the best guide is the heart's action; an average amount would be ℥vj *spts. vini gallici*, per diem.

The bladder should be attended to at each visit.

Intestinal hemorrhage; at once *morphina*, gr. ¼, hypodermatically, and *ext. ergotæ fld.*, gtt. xx–xl, repeated, or *Monsell's solution*, gtt. ij–iv, every two hours.

Perforation and *peritonitis;* at once *morphina*, gr. ¼, hypodermatically, followed with *extractum opii*, gr. j, every hour, and bold stimulation.

TYPHUS FEVER.

Synonyms. Contagious fever; ship fever; jail fever.

Definition. An acute febrile, *epidemic* disease; *contagious* and characterized by sudden invasion, profound depression of the vital powers, and a peculiar petechial eruption; favorable cases terminating by *crisis* in fourteen days. No lesion.

Cause. A special infecting germ, the character of which is unknown, but which is influenced by filth and overcrowding.

Pathology. Blood dark and thin, with lessened fibrin; tissues dark, soft and flabby.

Symptoms. Begins abruptly; *chill* followed by violent *fever;* temperature within a few days reaching 104° to 105° F.; a frequent, bounding *pulse*, soon becoming compressible; severe *headache*, followed by violent *delirium;* from the *fifth* to the *seventh* day, a coarse, red, measly *eruption*, with a mottling of the skin all over the body, except the face, not disappearing on pressure; *constipation* the rule. End of the second week, the temperature suddenly declines and the case passes into a *rapid convalescence.*

Complications. Pneumonia and swollen parotid glands are common.

Diagnosis. *From typhoid fever*, the age, season, onset of the disease, character of the eruption, and the intestinal symptoms.

Measles begin milder, with coryza and cough, and seldom have such pronounced nervous phenomena, but there occurs an early eruption appearing on the face.

Prognosis. *Unfavorable indications;* high temperature, frequent pulse, early stupor, presentiment of death. *Favorable;* youth, moderate temperature and pulse, and mild nervous phenomena.

Treatment. Much the same as typhoid. As *typhus* is distinctly contagious, *isolation* is imperative, with immediate removal and *disinfection* of the patient's excreta.

For high temperature, cold pack, cold bath, cold sponging, full doses of *quinina* or *antipyrin.*

For the *headache* and *delirium*, cold to the head, in the young and strong, a few leeches to the temple, and *chloral*, with or without the *bromides.*

For constipation, mild laxatives.

Debility; alcohol early and in full doses, *spiritus chloroformi* in drachm doses, whenever danger of collapse.

CEREBRO-SPINAL FEVER.

Synonyms. Epidemic cerebro-spinal meningitis; epidemic cerebro-spinal fever; spotted fever: cerebro-spinal typhus.

Definition. A malignant *epidemic* fever, characterized by painful contractions of the muscles of the neck, retraction of the head,

hyperæsthesia, disorders of the special senses, and frequently an eruption of petechia or purpuric spots. Lesions of cerebral and spinal membranes are found at the *post-mortem*.

Cause. Special poison, the nature unknown; attacks the young by preference; most common in winter; *not contagious*.

Pathological Anatomy. *Hyperæmia*, followed by an *exudation* of *lymph* and an *effusion* of *serum* upon the *membranes* of the brain and spinal cord, causing pressure.

Symptoms. Divided, according to the severity of the lesion, into three groups; to wit, the *common* form, the *fulminant* and the *abortive*.

The Common Form begins with a *chill*, excruciating *headache*, persistent *nausea*, *vomiting*, *vertigo* and an overwhelming sense of *weakness*. Within a few hours the muscles of the neck become *rigid* and *retracted*, with decided *pain* upon moving the head; this rigidity and retraction soon extends to the back, when *opisthotonos* occurs. The surface of the body becomes highly sensitive (*hyperæsthesia*) and *convulsions* or *delirium* occur. Intolerance of light, and in some cases *amaurosis*, more or less *deafness*, loss of *smell* and *taste* soon following. The *temperature* and *pulse* records are irregular. From the *first* day to the *fifth* an *eruption* of petechiæ or purpura occurs in a majority of cases. The disease reaches its height in from three to eight days, and passes into *stupor* and *coma*, or ameliorates and passes into a protracted convalescence.

The Fulminant Form. Severe *chill*, *depression*, and in a few hours *collapse*. The patient is overcome by the poison and never reacts.

The Abortive Form consists of one or more pronounced characteristic symptoms during the course of an epidemic.

Sequelæ. Result from thickening of either the cerebral or spinal membranes; Persistent *headache*, *blindness* or *deafness*, partial or complete; *epilepsy*, or different forms of *spinal palsies*.

Diagnosis. *Typhoid Fever* begins slowly, has a characteristic temperature record, *without intense* headache, muscular rigidity, vomiting, early delirium, ending in coma and constipation.

Typhus fever has higher fever, is of longer duration, and has a peculiar measly eruption, is *not* attended with muscular rigidity and retraction, hyperæsthesia, nor disorders of the special senses.

Tubercular meningitis is *not* epidemic, has no characteristic eruption; is preceded by long prodromes, and runs a tedious course.

A congestive chill resembles the *fulminant* cases in suddenness of depression, but the latter has not the history of the former.

Inflammation of the meninges of the cord is due to exposure to cold, or syphilis, and is not attended with cerebral symptoms or an eruption.

Prognosis. Varies according to epidemic; from twenty to fifty, and even seventy-five per cent. die.

Treatment. Full doses of *opium*. Hypodermatic use of *morphina*, gr. ¼ to ½ every two or three hours; or *extractum opii*, gr. j every hour until stage of effusion, when *quinina* in tonic doses, and *potassii iodidum* are indicated. Prof. DaCosta alternates *potassii bromidum* with *opium*, especially in children. *Locally*, cold to the head and spine. A generous diet from the onset. For *sequelæ*, *potassii iodidum*, a course of *hydrargyrum*, and flying blisters along the spinal column.

RELAPSING FEVER.

Synonyms. Famine fever; bilious typhoid fever.

Definition. An epidemic, *contagious*, febrile disease, self-limited; characterized by a febrile paroxysm, succeeded by an entire intermission, which is in turn followed by a *relapse* similar to the first seizure. No specific lesion.

Cause. A specific poison; *contagious;* acquiring the greater activity the more filthy, crowded and unhealthy the population amid which it prevails.

Pathological Anatomy. During the febrile paroxysm *only*, blood contains minute cork-screw-shaped organisms or *spiral* filaments —*spirilli*, constantly twisting and rotating.

Liver and spleen greatly swollen.

Symptoms. No *prodromes*. Onset abrupt, with fever, 102°–104°; frequent, rather *weak pulse*, *headache*, nausea, *vomiting*, and lancinating *pains* in limbs and muscles, marked in the calf of leg; *second day*, feeling of *fullness* and *pressure* in right and left hypochondrium, due to swollen liver and spleen; *jaundice* is frequent; *seventh day* fever ends by *crisis; fourteenth day* symptoms return in milder form, continuing about four days, when enters slow convalescence, much emaciated. *No eruption.* Several *relapses* may occur.

Diagnosis. *Yellow fever* has many points of resemblance, but has a shorter febrile stage, remission not so complete, vomiting late

and characteristic, normal spleen, and late appearance of yellow color.

Remittent fever begins with a decided chill, followed by fever and sweats, and not the progressive rise of temperature till the fifth or seventh day.

Prognosis. Recovery the rule, but protracted, and decided *emaciation* results.

Treatment. *Expectant.* Act on secretions; nourish patient and meet urgent symptoms. For fever, antipyretic doses of *quinina* which, however, has no power to prevent the relapses; for pain, hypodermatic injections of *morphina;* nausea and vomiting, *acidum carbolicum* or *cerii oxalas;* during remission, *ferrum* and *quinina* in tonic doses.

PERIODICAL FEVERS.

These affections are characterized by the distinct periodicity of the phenomena, having intervals during which the patient is wholly or nearly *free from fever.*

INTERMITTENT FEVER.

Synonyms. Ague; chills and fever; malarial fever.

Definition. A *paroxysmal* fever, the phenomena observing a regular succession; characterized by a cold, a hot and a sweating stage, followed by an interval of complete *intermission* or apyrexia, varying in length, according to the variety of the attack.

Cause. Malaria. *Bacillus Malaria?*

Pathological Anatomy. Blood dark, from the formation of pigment (*Melanæmia*). Spleen swollen (*Ague cake*). Liver engorged and swollen.

Varieties. *Quotidian* when a daily paroxysm; *tertian* when every other day; *quartan* when it occurs first and fourth days; *octan* when weekly; *duplicated quotidian* when *two* paroxysms daily; *duplicated tertian*, two every second day; *double tertian*, daily paroxysm, but more severe every second day. *Dumb ague*, or masked ague, has irregularity of the characteristic phenomena.

Symptoms. Each paroxysm has three stages, to wit: *cold, hot* and *sweating.*

Cold stage begins with *prodromes*, to wit: lassitude, yawning, headache and nausea, followed by a *chill;* the teeth chatter, skin pale, nails and lips blue, the surface rough and pale, the so-called goose-

skin or *cutis anserina*, nausea and great thirst, while the thermometer in the axilla or mouth shows a decided *rise of temperature*, 102° F.,–104°; these phenomena continuing from one-half to an hour.

Hot stage begins gradually, by the shivering ceasing, the surface becoming *hot* and flushed, the temperature rising to 106° F., or more, *pulse full, headache, nausea, intense thirst*, dry, flushed, swollen skin, *scanty urine* and other phenomena of *pyrexia*, continuing from one to eight or ten hours.

Sweating stage begins gradually, first appearing on the *forehead*, then spreading over the entire surface; the *fever lessens*, the temperature rapidly falling to 99° or 98°, pulse less full, headache lessens, and a feeling of comfort, sleep often following; duration from one to four hours, when the *intermission* occurs, the patient apparently well, excepting a feeling of general debility.

The occurrence of the next paroxsym depends upon the variety of the attack.

The paroxysm may be ushered in by a decided pain in one or more nerves, instead of the cold stage, to wit: "*brow ague.*"

Diagnosis. No difficulty when the characteristic *chill, fever*, and *sweats* occur.

Hectic fever. Distinguished by its irregularity, and occurring secondary to an organic disease.

Pyæmia, produced by other causes than malaria.

Nervous chills show an *absence* of the temperature rise.

Prognosis. Recovery the rule. Without treatment many cases end favorably after several paroxysms; others passing into the *chronic* form or *malarial cachexiæ.*

Treatment. *Cold stage* can be averted and the other stages greatly modified by a hypodermatic injection of either *morphinæ sulph.*, gr. ⅛–¼, or *pilocarpinæ hydrochloras*, gr. ⅛, or *chloroformi spts.*, f℥j, by the stomach. *Hot stage*, cool drinks and cold sponging. *Sweating stage*, when excessive, sponging with *alumen* and hot water.

Intermission; at once a brisk purgative, followed by *cinchona* in some form, the most efficient being *quininæ sulph.*, gr. xx–xxiv, in solution or freshly-made pills, in one or two doses, *three* to *five hours before* the expected paroxysm. Many substitutes are lauded to replace the salts of cinchona bark, but without avail.

After the *paroxysms* are broken up, use *liq. potassii arsenit.*, gtt. v–x,

t. d., for a long time, or *tinct. ferri. chloridi*, gtt. xx, every four hours, or a combination like the following:—

℞. Ferri reducti
Quininæ sulph..... āā ..... gr. xlviii
Acidi arseniosi..... gr. j
Ol. pip. nigr..... gtt. xv. M.
Ft. Pil No. xxiv.
SIG.—One pill after meals, continued for one month, at least.

Relapses being common, *quinina* should be given on the *second* or *third* day, *fourth* to the *sixth*, *twelfth* to the *fourteenth*, and *nineteenth* to the *twenty-first* days.

REMITTENT FEVER.

Synonyms. Bilious fever; bilious remittent fever; marsh fever; typho-malarial fever?

Definition. A *paroxysmal* fever, with exacerbations and *remissions*; characterized by a moderate cold stage (which does not recur with each paroxysm); an intense hot stage, with violent headache and gastric irritability; and an almost imperceptible sweating stage, which is frequently wanting.

Cause. Malaria, aided by high temperature.

Pathological Anatomy. Blood dark (*Melanæmia*); spleen enlarged, soft, filled with blood, and of an *olive* color; liver congested and swollen, and of a *bronze* hue; the brain hyperæmic and olive-colored; gastro-intestinal canal markedly hyperæmic.

Symptoms. *Cold stage;* moderate *chill*, the temperature rising 1° to 2°, *oppression at the epigastrium*, slight *headache*, and pains throughout the body.

Hot stage; persistent *vomiting*, furred tongue, *full pulse*, rising to 100 or 120, flushed face, *injected eye*, violent *headache*, *pains* in limbs and loins, hurried *respiration*, the *temperature* rising to 104° F., or 106°. The bowels costive, *stools tarry* and offensive, and the *surface* becoming *yellow*. *Delirium* occurs when the temperature is very high.

Sweating stage; after six to twenty-four hours, the above symptoms abate, and *slight sweating* occurs; the *pulse*, *headache* and *vomiting* subside, and the *temperature* falls to 100° F., or 99°.

This is the *remission*.

After some *two* to *eight* or *twelve* hours the symptoms of the hot stage return, generally *minus* the *chill*, and this is termed the *exacerbation*, which is in turn followed by the *remission*.

Duration. From seven to fourteen days, the average. Frequently the fever *ceases to remit*, and instead, becomes *continuous*, the symptoms resembling, if they are not identical with, the *typhoid state*, whence the term *typho-malarial fever, or malario-typhoid fever*.

Sequelæ. The *malarial cachexia* results when the poison has not been eliminated.

Persistent headache and vertigo are the results of the intense meningeal hyperæmia that sometimes occurs.

Diagnosis. In *intermittent fever* each paroxysm begins with a chill, while the chill seldom recurs in remittent fever; a distinct *intermission* follows each paroxysm of the intermittent form, while a *remission* occurs in remittent, the thermometer showing that the fever does not wholly disappear; during the *intermission* the patient is apparently well; such is not the case in the remission of remittent fever.

Typhoid fever is mistaken for remittent fever, but the absence of characteristic temperature record, diarrhœa, eruption, tympanites, deafness and severe prostration, should prevent the error.

Prognosis. Uncomplicated cases are favorable.

Treatment. *Quininæ sulph.*, gr. xvj–xx per diem, is the remedy. Best given during the *remission*, if possible. If an irritable stomach prevents its administration by the mouth, use it by the *hypodermatic method* or *suppository*. During the *hot stage*, cool sponging, cold to the head, and if a tendency to cerebral congestion, dry or wet cups to the nape of the neck and—

℞. Tinct. aconit. rad..... gtt. j–ij
Liq. potas. citrat..... ʒij
Liq. ammon. acetat..... ʒij. M.
Every two hours.

Purgation during the remission, with—

℞. Hydrarg. chlor. mitis..... gr. v
Sodii bicarb..... gr. x
Pulv. aromat..... gr. v. M.
In pulv. p. r. n.

The same precautions are essential after the paroxysms are broken up, to prevent their return on the septenary periods, that were recommended for intermittent fever.

PERNICIOUS FEVER.

Synonyms. Congestive fever; malignant intermittent fever; malignant remittent fever.

Definition. A malignant, destructive, malarial fever, which may be of the intermittent or remittent form; characterized by *intense congestion* of one or more internal organs, *together* with dangerous perversion of the functions of innervation.

Cause. A high degree of malarial poison.

Varieties. *Gastro-enteric; thoracic; cerebral; hemorrhagic; algid.*

Symptoms. Any of these varieties may begin either as an *intermittent* or *remittent* fever; again, the *first paroxysm* is rarely pernicious, but appears as the ordinary malarial attack.

The *gastro-enteric* variety has as distinctive features, *intense nausea* and *vomiting*, *purging* of thin discharges mixed with blood, *tenesmus*, *burning heat* in *stomach*, intense *thirst*, frequent, weak *pulse*, face, hands and feet *cold*, with *shrunken features*, and intense depression of all the vital forces. This condition continues from half an hour to several hours, when either an inter- or remission occurs.

Thoracic variety often combined with the one just described. Its characteristic features are due to overwhelming congestion of the lungs, such as *violent dyspnœa*, *gasping* for air, 50 to 60 respirations per minute, *oppressed cough* with slight amount of blood-streaked sputa, *frequent*, *weak pulse*, *cold surface*, and terror-stricken features. Duration same as above.

Cerebral variety, due to intense congestion of the brain; sometimes effusion of serum into the ventricles, or even rupture of small blood vessels. Characterized by *violent delirium*, followed by *stupor* and *coma*, *slow*, *full pulse*, the surface either *flushed* or *livid*. Cases may either resemble *apoplexy*—comatose variety, or *acute meningitis*—delirious variety. Duration same as other forms.

Hemorrhagic variety, or the yellow disease, as it has been termed, begins as an ordinary inter- or remittent fever, soon followed by signs of *internal congestion*, to wit: *nausea*, *vomiting*, *dyspnœa*, severe *pains* over *liver* and *kidney*, continuing for a few hours, when the *surface* suddenly turns *yellow* and *bloody urine* is voided, after which an inter- or remission and marked abatement occurs, to be sooner or later followed by a second paroxysm, which is more severe, with additional

signs of *cerebral congestion*. Blood may also escape from other parts than the kidneys.

Algid variety is characterized by intense *coldness* of the surface, while the rectal temperature ranges from 104° to 107° F. The attack begins with *chill* which is soon followed by *fever* of variable duration, when the body becomes *cold*, the axillary temperature falling to 90°, 88° or even 85° F., a *cold sweat* covers the surface, the tongue is *white, moist* and *cold*, the *breath* is *icy*, the *voice* feeble and indistinct, the *pulse slow, feeble* and often *absent* at the wrist, and with all these symptoms, the patient complains of a sensation of *burning* and *intense thirst*. The *mind is clear*, but the countenance is *death-like*.

Duration. Pernicious fever, in any of its forms, may continue from a few hours until one, two or three days. Recovery is rare after a *second*, almost never after a *third*, paroxysm.

Diagnosis. *Yellow fever* is most apt to be confounded with the *hemorrhagic* variety, and as they both occur in the same localities, the diagnosis is difficult; the early *yellowness* of the surface, with *hæmaturia*, and the absence of the *black vomit*, are the chief points of distinction.

The *cerebral* variety may be mistaken for *cerebral apoplexy, meningitis* and *uræmic convulsions*. Nor is it always an easy matter to differentiate between these conditions.

The *gastro-enteric* variety may be mistaken for the early stage and the *algid* variety for the latter stage of *cholera*, but the prevalence of the latter should be of material aid in deciding the question.

Prognosis. In all varieties the result is unfavorable, unless it can be controlled prior to the *second* paroxysm. Cases in which an *intermission* occurs are better controlled than where a remission follows. The mortality is *one* in *eight* from all plans of treatment.

Treatment. The first indication in all varieties is to bring about *reaction*. If the *cold stage*, heat to the surface, with stimulating lotions; if the *hot stage*, cold to the surface and the hypodermatic injection of *morphina*, gr. ¼, at once. After *reaction, quininæ sulph.*, not less than gr. xl, repeated p. r. n.; administer by stomach, rectum, or better still, by hypodermatic injection. Dr. Bartholow pronounces the following one of the best formulæ for the hypodermatic use of quinina:—

℞. Quininæ di-sulph..... gr. l
Acid sulph. dil..... ♏ c
Aquæ font..... ℥ j
Acid carbol. liq..... ♏ v. M.

The following formula, known as "Warburg's Tincture," has during the last few years gained considerable reputation in the various forms of malarial fevers:—

℞. Rad. rhei, P. aloe soc, and Rad. angelica officinalis ..... āā ..... ℥iv
Rad. helenii, Crocus Hispan., Sem. fœniculi, and Cretæ preparat ..... āā ..... ℥ij
Rad. gentian, Rad. zedoar, P. cubeb, G. myrrh, G. camphor, and Boletus Laricis ..... āā ..... ℥j
Confect. damocratis * ..... ℥iv
Quininæ sulph ..... ℈lxxxij
Spt. vini rect ..... Oxx
Aquæ puræ ..... Oxij

Macerate in a water bath twelve hours, express and filter.

Each half ounce contains Quininæ sulph. gr. vijss. If the stomach is too irritable to retain the tincture, the tincture may be evaporated to dryness and administered in *capsules*, each containing either one or two drachms.

For the *gastro-enteric* variety, Prof. DaCosta suggests—

℞. Morph. sulph ..... gr. ⅛
Pulv. camph ..... gr. j
Mass. hydrarg ..... gr. ij
Pulv. capsici ..... gr. ss. M.

In pills every half hour until the character of the stools change.

* Formula of *Confectio damocratis*:—

Cinnamon ..... xiv Gm
Myrrh ..... xj Gm
White agaric, Spikenard, Ginger, Spanish saffron, Treacle, Mustard seed, Frankincense, and Chian turpentine ..... āā ..... x Gm
Camel's hay, Costus arabacus, Zeodary, Indian leaf, Mace, French lavender, Long pepper, Seeds of harwort, Juice of rape cistus, Strained storax, Opponex, Strained galbanum, Balsam of Gilead, Oil of nutmeg, Russian castor ..... āā ..... viij Gm
Water germunder, Balsam tree fruit, Cubeb, White pepper, Seeds of carrot of Crete, Poley mont, Strained bdellium ..... āā ..... vij Gm
Gentian root, Celtic hard, Leaves of Dittany of Crete, Red rose, Seeds of Macedonium, Parsley, Sweet fennel seed, Seeds of lesser cardamon, Gum arabic, Opium ..... āā ..... v Gm
Sweet flag, Wild valerian, Anise seed, Sagapernum ..... āā ..... iij Gm
Spigrul, St. John's wort, Juice of acacia, Catechu, Dried bellies of skunk ..... āā ..... ijss Gm
Clarified honey ..... cmxv Gm.

The roots to be finely powdered and the whole mixed thoroughly.

For the *thoracic* variety, dry or wet cups and *ammonii carbonas*.

For the *cerebral* variety, venesection, or cups or leeches to the neck, cold to the head, prompt purgation, and acting on the kidneys and skin.

For the *algid* variety *warmth* to the surface, hypodermatic use of *morphina* and the free use of *ammonii carbonas* and *alcoholic stimulants*.

For the *hemorrhagic* variety, purgatives, *morphina* hypodermatically, and either *acid sulph. dil.*, *acid gallic*, *Monsell's solution*, or *terebinthina* for the hemorrhages.

The following is highly spoken of for hemorrhages:—

℞. Ext. ergotæ, fld..... ℥ss
Acid sulph., dil..... f℥jss
Acid gallic..... ℥j
Syr. zingib..... f℥iij
Aquæ q. s.....ad..... f℥iij. M.

SIG.—Dessertspoonful every 4 hours, well diluted.

After paroxysms are broken up, a long course of *ferrum*, with *quinina* on the septenary days.

YELLOW FEVER.

Synonyms. Bilious malignant fever; typhus icterode; Mediterranean fever; sailors' fever.

Definition. An acute, infectious, paroxysmal disease, of *three stages*, to wit: the *febrile*, the *remission*, and the *collapse;* characterized by violent fever, yellowness of the surface, and "black or coffee-ground vomit." Tendency fatal; one attack confers immunity from a second.

Cause. A specific poison, existing only with a high temperature and destroyed by frost. *Not due to the malarial poison.*

Pathological Anatomy. *Skin* lemon or greenish-yellow color, due to dissolution of the red blood corpuscles; *heart* softened by granular degeneration; *stomach*, veins deeply engorged, the mucous membrane softened, and containing more or less "coffee-ground" matter, which consists of blood corpuscles deprived of their hæmoglobin, white corpuscles, epithelial cells and *debris*. *Intestines* much the same as the stomach; *liver* yellow color and a fatty degeneration of the hepatic cells; *kidneys*, granular degeneration of the epithelium of the tubules.

Symptoms. *First stage, the febrile*, beginning either with the prodromata of *malaise*, headache and anorexia, or suddenly with a *chill*, high *fever*, in a few hours reaching 104° F., high *pulse*, *brilliant eye*, flushed countenance, coated tongue, *irritability* of the *stomach*, and severe *neuralgic pains* in the head, limbs, epigastrium, back, and large joints. The patients are restless and anxious. In severe attacks *delirium* is frequent. *Albumen* in the urine, and a peculiar and characteristic *odor* is emitted from the patient. Duration of the first stage from thirty-six hours to three or four days.

Second stage, the remission, when the temperature declines to 100° or 101° F., and all the distressing symptoms abate or subside and, with some critical evacuation, convalescence occurs, or, more commonly, after from one to four days, the

Third stage, the stage of collapse, is ushered in by a return of all the symptoms of the first stage in an exaggerated form, followed by *yellowness* of the skin, passing to a deep mahogany color, *black vomit* and *hemorrhages* from other parts, *feeble pulse*, *cold surface*, *irregular respiration* and *death* from *exhaustion*, the mind remaining clear until the end.

The above symptoms represent a *sthenic* case; other varieties are the *algid*, *hemorrhagic* and *typhus*.

Duration. Depends upon the variety; from a few hours to a few days. Rarely continues longer than one week.

Diagnosis. *Pernicious fever*, hemorrhagic variety, is apt to be mistaken for yellow fever. Yellow fever is a disease of *one* paroxysm, and *one* remission, epidemic, albuminuria and black vomit. Pernicious fever more than one paroxysm, not epidemic, rarely black vomit or albumen in urine.

Prognosis. One in four perish. Short cases unfavorable, as are the hemorrhagic and algid.

Treatment. *No specific;* a "self-limited" disease. The indications are to treat the symptoms and nourish the patient. Good nursing, ventilation, *early emesis* and *purgation*, with *diaphoretics* and *diuretics*, are apparently beneficial. Large doses of *quinina*, early in the attack, for high temperature; for the irritable stomach, *ice* slowly dissolved in the mouth and *acidum carbolicum*, gr. ¼ in *aqua menthæ pip.*, every two hours, alternated with *liquor calcis* and milk, each an ounce, or—

℞. Hydrargyri chlor. mite..... gr. ¼
Morphinæ sulph..... gr. $\frac{1}{24}$.
Every two hours until nausea controlled.

For the black vomit and hemorrhages, either *liquor ferri subsulphatis* or *plumbi acetas*. The pains, restlessness or delirium are best controlled by the hypodermatic use of *morphina* and *atropina*. Free stimulation from the onset is essential.

ERUPTIVE FEVERS.

As a group, the eruptive or exanthematous fevers have many features in common. All have a period of incubation, are characterized by a fever of more or less intensity preceding the eruption, by an eruption which is peculiar to each, occurring most commonly in childhood, rarely attacking the same person twice, very prone to occasion serious sequelæ, and are contagious. Their origin is as yet unknown.

SCARLET FEVER.

Synonym. Scarlatina.

Definition. An acute, self-limited, *infectious* disease; characterized by high temperature, rapid pulse, a diffused scarlet eruption, terminating with desquamation, inflammation of the throat, and frequently more or less grave nervous phenomena. Serious sequelæ usually follow an attack. One attack confers immunity from the disease.

Pathological Anatomy. An acute inflammation of the skin, with exudation—a true *Dermatitis*. A *granular* change in all glandular structure, most marked in the Peyerian glands, although occurring in the stomach and kidneys.

Cause. A specific poison, maintaining its vitality for a long time. Eminently *contagious*, the contagion residing chiefly in the desquamated epidermis. Klebs' micrococci, the "monas scarlatinosum," may prove to be the poison. *Incubation* short, one to seven days.

Varieties. Scarlatina simplex, scarlatina anginosa and scarlatina maligna.

Symptoms. Onset sudden with a decided *chill* and *vomiting* (in infants, convulsions), followed by *high fever*, soon reaching 105°; a *rapid pulse*, 110 to 140 being common. At the end of twenty-four hours a *bright scarlet rash* appears on the neck and chest, spreading

over the entire body within a few hours; the eruption is not raised, there is no intervening healthy skin, and scattered irregularly are points of a darker hue. With the appearance of the eruption occurs *burning heat of surface*, *burning in the throat* and *difficulty in deglutition* are complained of, the throat on inspection presenting the appearance of a *catarrhal* inflammation. *Tongue* at first furred, later, red, with prominent papillæ—the "strawberry tongue." There also occurs *headache*, *great restlessness*, in severe cases *delirium*. *Diarrhœa* quite common.

On the fourth or fifth day the fever declines by *lysis*, the eruption fading, and on the sixth or eighth day *desquamation* begins, continuing for a week or more, the *convalescence* being slow, the patient *emaciated* and *pale*.

Scarlatina anginosa are cases with great inflammation and swelling of the *throat*, *tonsils* and neighboring *glands*, the swollen glands pressing upon the surrounding parts, causing *difficulty of breathing and of deglutition*.

Scarlatina maligna are cases with decided *nervous* phenomena, to wit: *convulsions*, *delirium* and *muscular twitching*, the *temperature* reaching 107° to 110°, the *pulse rapid, feeble* and *irregular*, the *eruption* delayed, of a purplish color, and in *patches*.

Sequelæ. Chronic sore throat; conjunctivitis; otorrhœa; chronic diarrhœa; subacute rheumatism; endocarditis; acute Bright's disease; cutaneous dropsy.

Diagnosis. A typical case should cause no difficulty; the high fever, rapid pulse, sore throat, and early scarlet eruption, followed by desquamation, should leave no doubt.

Measles; the above symptoms are absent, and *catarrhal* symptoms present.

Smallpox; eruption on the third day, in spots, changing to pustules with secondary fever.

Dengue or break-bone fever; absence of the above typical symptoms and presence of severe *pains in the bones*.

Diphtheria; gradual invasion, great prostration, and no eruption.

Meningitis may be suspected from the symptoms of *scarlatina maligna;* the epidemic influence, eruption, and rapid pulse, are points of difference.

Prognosis. Depends upon the character of the attack. Never can be positive of the result. Mortality ranges from ten to twenty-five per cent.

Treatment. *No specific.* Treatment must be *symptomatic.*

For *fever* and *rapid pulse*, either *tinct. aconit. rad.* or *digitalis.* If the temperature reaches over 106°, the cold bath, douche or pack in addition.

For *pruritus* the local use of *oils* or *fats*, in some form, affords great relief, the following formula being most efficient, as well as a disinfectant:—

℞. Acidi carbolici..... ʒ ss–j
Vaselini..... ℥ iv. M.
SIG.—To be applied over the entire surface.

If the surface is pale, the circulation feeble and the eruption tardy in making its appearance, use *tinct. belladonnæ*, gtt. ij–x, according to age.

For the *throat*, ice internally, and if it does not cause chilliness, externally, if so, apply heat externally; also *gargles* in those old enough, and in those too young, swabbing the throat is an efficient substitute. The following formula is satisfactory for either purpose:—

℞. Potass. chlor..... ʒ iij–vj
Tinct. myrrh..... f℥ ij
Mel. desp..... ʒ iij
Infus. cinchonæ..... f℥ iv. M.

From the onset, in all cases, either *ammonii carbonas*, or *tinct. ferri chlor.* and *quinina* should be used, proportioning the dose according to the age and severity of the attack.

Dr. J. L. Smith warmly lauds the following mixture for cases with decided *throat* symptoms.—

℞. Acid boracic..... ʒ ss
Potass. chlor..... ʒ ij
Tinct. ferri chlor..... f ʒ ij
Glycerinæ,
Syrupi..... āā..... f℥ j
Aquæ..... f℥ ij. M.
SIG.—One tablespoonful every two hours, to a child of five years.

For *malignant* cases bold stimulation from the onset.

It is claimed that a characteristic micrococci is found in the blood, and that, consequently, the disease can be favorably influenced by *acidum carbolicum, thymol* or *acidum boricum.*

For the various *sequelæ*, the treatment is the same as if they occurred primarily, *plus* tonics.

The disease being *infectious*, every means should be taken to prevent its spread, to wit: isolation, cleanliness, disinfection and fumigation.

Small doses of *quinina*, in those exposed, is said to prevent or modify the severity of an attack, but no true prophylactic is known.

MEASLES.

Synonyms. Morbilli; rubeola.

Definition. An acute *epidemic* and *contagious* disease; characterized by catarrhal symptoms, referable to the naso-broncho-pulmonary mucous membrane, fever, and a crimson eruption which terminates by desquamation.

Cause. A specific poison, with a special susceptibility to childhood. Contagious by contact, and has been communicated by inoculation. One attack, as a rule, protects from a second. *Incubation*, ten days.

Symptoms. Onset gradual, irregular *chills*, *fever*, the temperature rising to 101° or 102°, *muscular soreness*, *headache*, and intense *nasal*, *pharyngeal* and *laryngeal catarrh;* on the evening of the *second day* a *decided remission* takes place in the *fever*, the catarrh continuing; on the *fourth day* occurs an eruption of a *crimson* color, on the face, soon spreading over the body, in the form of dots, slightly elevated, which coalesce into irregular circles or *crescents*, and with the appearance of the eruption the *fever returns*, the catarrh is aggravated, but the character of the *discharge*, instead of being clear and watery, becomes *turbid*, *thick* and *yellowish*, and extends to the *bronchial* mucous membrane. About the *ninth day* the eruption fades, the symptoms abate, and slight desquamation occurs. Some cough and catarrh may remain for a long period.

Black measles or camp measles is a variety occurring in camps and jails, in which occur dangerous chest symptoms, and black spots or petechiæ from deteriorated blood, and severe prostration.

Rather common complications are *lobar* and *catarrhal pneumonia*.

Sequelæ. In those of *strumous diathesis*, scrofula or phthisis may develop.

Diagnosis. A typical case begins gradually, with chilliness, nasal catarrh, watery eye, and fever, which decline before the eruption, rising afterwards, the eruption crescentic in shape, and of a crimson color.

Scarlet fever; absence of catarrh, and earlier appearance and different character of the eruption with severe fever and rapid pulse.

Prognosis. As a rule, a perfect recovery. If phthisis develop, the prognosis is bad. Black measles, the majority perish.

Treatment. *No specific.* Mild cases require no medicine, simply regulating the diet and bowels, and cool sponging.

If *fever high*,—

℞. Liq. potass. citrat..... ℥j
Spts. æther nitrosi..... gtt. x–xv
Tinct. aconit. rad..... gtt. ss–j. M.
Every two hours, soon controls it.

For *pruritus* of the *eruption*, the local use of *oils* and *fats*. For *catarrhal symptoms*, inunction of the nose, neck and chest with *camphorated oil* and small doses of *pulv. ipecac et opii*, at bedtime; if the catarrh extends to the bronchial mucous membrane, *expectorants*.

During convalescence, for the strumous, protect from exposure, and *ol. morrhuæ* with *syr. ferri iodidi*. For *black measles*, bold stimulation, with *ferrum* and *quinina*.

RÖTHELN.

Synonyms. Epidemic roseola; German measles; French measles; false measles.

Definition. An acute, self-limited disease; characterized by mild fever, suffused eyes, cough and sore throat, enlargement of the lymphatic glands of the neck, and a rose-colored eruption, in patches of irregular size and shape, appearing on the first day.

Cause. Propagated by infection. That a peculiar germ exists is probable, but thus far it has not been isolated. *Incubation* from one to three weeks.

Symptoms. Onset sudden, with *mild fever*, *suffused eyes*, with little or no coryza, *sore throat*, and *enlargement* of the *cervical glands*, not limited to those about the angle of the jaw, as in scarlatina. Any time from the *first* to the *fourth* day appear *rose-colored spots*, size of a pin head, slightly elevated, which coalescing, form irregular shaped and sized patches, with intervening healthy skin, fading on the upper part of the body while just appearing on the lower. Symptoms all terminate within a week by *lysis*, the patient being none the worse for the attack.

Diagnosis. From *scarlet fever*, by absence of high fever, rapid pulse, color and character of eruption and sequelæ.

From *measles*, by absence of intense catarrhal symptoms, late appearance of eruption and not of a crescentic shape.

Prognosis. Most favorable.

Treatment. Mild laxatives and restricted diet. If *fever* high, saline mixture. *Itching* of skin, sponging with vinegar and water.

SMALLPOX.

Synonym. Variola.

Definition. An acute, epidemic and *contagious* disease; characterized by severe lumbar pains, vomiting, and an initial fever, lasting from three to four days, followed by an eruption, at first *papular*, then *vesicular* and afterwards *pustular;* the development of the pustule being accompanied by a *secondary fever*, during the presence of which grave complications are prone to occur.

Causes. A specific poison whose nature is unknown, maintaining its contagious vitality for a long period. There is no period, from the initial fever to the final desquamation, when the disease is not contagious, although the stage of suppuration is the most virulent. One attack, as a rule, protects from a second. *Vaccination* has positive protective influence from the disease, as extensive observation has fully proven that in proportion to the efficiency of vaccination is the rarity and mildness of variola. *Incubation*, fourteen to sixteen days.

Pathological Anatomy. A granular and fatty degeneration occurs in the liver, spleen, kidneys and heart. The *pustules* are found in the larynx, trachea, bronchial tubes, and on the pleura.

Varieties. Discrete; confluent; malignant; varioloid or modified smallpox.

Symptoms. *Discrete form.* Onset sudden, with a *violent chill*, *vomiting*, and agonizing *pains in the back*, shooting down the limbs; *fever*, in short time, rising to 103° or 104° F.; *full, strong* and *rapid pulse*, ranging from 100 to 130; the *face red, eyes injected, intense headache* and *sleeplessness; delirium* and *convulsions* occur at times. During the *third day* the characteristic eruption makes its appearance, first on the forehead and lips, consisting of *coarse red spots;* with the appearance of the eruption all the marked symptoms of the fever abate, the patient feeling quite comfortable. On the *fifth* day

of the disease the spots become *papules;* on the *sixth day*, transformed into *vesicles*, which are soon *umbilicated;* on the *eighth day* the *vesicles* change to *pustules;* on the *ninth day* the pustules are entirely purulent, and each surrounded with a broad red band, the *halo* or *areola*, the face becoming swollen, and the features distorted; on the *eleventh day*, pus oozes from the pustules, and drying, forms the *scab* or *crust*, which, on the *seventeenth* to *twenty-first day* drops off, leaving a red, glistening depression or *pit*, soon changing into a white cicatrix. With the formation of the pustules (*eighth day*) severe *rigors* and *fever* set in, and a characteristic *odor* is emitted, all the original symptoms returning; this *secondary fever* is the most critical period of the disease, and is generally attended with *violent delirium*. In favorable cases the secondary fever subsides after three or four days, and *convalescence* is established.

Confluent smallpox differs from the *discrete* in being more severe, the *eruption* appearing during the *second day*, the *pustules* coalescing into large patches, causing great distortion of the features.

Malignant smallpox is characterized by the intensity and irregularity of the symptoms, death resulting before the characteristic eruption appears, by convulsions or coma. In these cases *hemorrhages* are frequent and petechiæ are observed.

Varioloid, or modified smallpox, is the form modified by previous vaccination or by a former attack of smallpox. Its course is shorter and milder than the other forms, the eruption appearing a day later, and is *not attended with secondary fever.*

Complications. During the course of the *secondary fever* there is a great tendency to grave inflammations, to wit: *pleuritis, pneumonitis* and *dysentery.* During *convalescence, boils* and *abscesses* on the skin are frequent.

Diagnosis. Cannot be confounded with any other disease if have typical symptoms, to wit: chill, vomiting, pains in back and legs, high fever and pulse, all declining on *third day*, when the eruption appears, first spots, then papules, then vesicles, finally pustules, drying and forming crusts, and with the marked secondary fever.

Prognosis. Depends upon the *variety* of the attack, the *age* of the patient, and whether *vaccinated* or not. *Discrete* mortality four per cent.; *confluent*, fifty per cent.; *malignant*, all perish; under *five years* and over *forty years*, fifty per cent.

Treatment. *No specific*, although cases seem to do better if *acidum carbolicum* or *thymol* are used.

For the *initial fever* and the *full pulse*—

℞. Tinct. aconit. rad..... gtt. j–ij
Spts. æther. nitrosi..... ʒss
Liq. ammonii acetat..... fʒij
Aquæ..... fʒiss. M.
Every hour or two.

Or

℞. Acid. salicyl..... gr. x
Spts. vini rect..... gtt. xx
Elix. simp..... ʒss. M.
Every hour or two.

If *headache* and *backache* are intense, hypodermatic injections of *morphina*, or *ice bag* to the head and back.

For *sleeplessness* and *restlessness* or *early delirium* full doses of *potassii bromidum*.

For *secondary fever* the best remedy is *quinina*, gr. v, every three hours, and for *cerebral excitement* of this period, either full doses of *potassii bromidum*, by stomach, or the following by rectum :—

℞. Chloral..... gr. xv–xx
Mucil. acacia..... fʒij
Aquæ..... fʒij. M.
p. r. n.

The secondary fever being pyæmic in character, the depression should be anticipated by large doses of *tinct. ferri chloridi* and judicious *stimulation*, brandy in tablespoonful doses the most efficient.

From the onset, milk, eggs, animal broth, oysters and beef juice should be administered every *three hours*. *Ice* is always grateful and should be given freely, and if pustules appear in the mouth, ice should be held in the mouth as long as possible, and washes of *potassii chloras* or *acidum carbolicum* employed.

The disease being contagious, *isolation*, *ventilation*, *cleanliness* and *disinfection* are imperative.

To prevent pitting keep patient in a *dark room*, well ventilated. *Masks* of some unctuous material, thoroughly applied, to exclude the air, have a beneficial effect, a good formula being, ℞. *Ung. hydrarg.*, *pulv. marantæ*, *equal parts*, *or glycerit. amylii*, painted over eruption.

changing to *tinct. iodi* as vesicles are about to develop. *Cold water* dressings constantly to face and hands are beneficial, besides allaying heat, pain and swelling. *Hot water* can be used if more grateful.

VACCINATION.

Definition. Inoculation with the matter of *vaccinia* or cow-pox —*bovine virus*. The person *properly* vaccinated is, as a rule, protected from an attack of smallpox, and especially from a severe or fatal attack.

Vaccination should be performed at least *twice* in every individual, to wit: during *infancy* and at *puberty*; and it is safer to have it again performed if special exposure be liable or occur.

In practicing vaccination the skin should be rapidly scraped until the true skin is reached and is ready to bleed, the lymph being then brushed over the abraded surface; or, instead, make three or four horizontal and transverse cuts, about four lines long, and rub the virus over them; a little blood, but not much bleeding, should be caused.

Symptoms. If the vaccination "takes," on the *third day* a *papule* appears; on the *sixth day* a *vesicle* has formed, with a central depression; on the *eighth* day a *pustule*, fully formed and distended with lymph, with a reddish areola, which becomes very wide. The areola begins to fade on the *tenth day*, the pustule begins to dry, and by the *fourteenth day* a *brown mahogany scab* or *crust* has formed, which is detached about the *twenty-third day*. The *cicatrix* is circular, depressed, radiated and foveated, becoming, after a time, paler than the surrounding integument.

During the course of a vaccination, more or less constitutional disturbance occurs, especially in children.

Eczematous and papular eruptions often develop in strumous children, for which the virus is unjustly held responsible.

VARICELLA.

Synonym. Chicken-pox.

Definition. A mild, slightly contagious, febrile affection; characterized by a moderate fever, and the appearance of a *vesicular* eruption, drying up and falling off in from three to five days.

Cause. A peculiar poison; attacking only children; occurring sporadically and as an epidemic.

Symptoms. Moderate *fever*, thirst, anorexia and constipation, followed by the eruption of *vesicles*, which rapidly dry, and within the week drop off, leaving a slight *pit*. *Pustules* almost never occur. Symptoms are so slight that, were it not for the vesicles, the affection would be often overlooked. The eruption appears on the *trunk* and *extremities*, very rarely on the forehead and in the mouth.

Prognosis. Most favorable.

Treatment. Entirely symptomatic. If vesicles on the face, efforts may be used to prevent pitting.

ERYSIPELAS.

Synonyms. Erysipelatous dermatitis; the rose; St. Anthony's fire.

Definition. An acute, specific, infectious disease; characterized by a fever of low type, and a peculiar inflammation of the skin, generally of the neck and face. This inflammation exhibits a marked tendency to spread, to induce serous infiltration and suppuration of the areolar tissue, and to affect the lymphatic vessels and glands.

Cause. A poison, the nature of which is unknown. *Feebly contagious.* One attack predisposes to another. The etiology of idiopathic (medical) and traumatic (surgical) erysipelas are identical.

Symptoms. Onset sudden; a *chill*, followed by *fever*, which soon reaches 104° or 105°, *frequent pulse*, 100 to 130, coated tongue, *nausea* and *vomiting*, severe pains in the limbs, with epistaxis in adults and convulsions in children, and often *diarrhœa*.

Delirium is frequent, and in those of alcoholic habits it resembles delirium tremens.

The *eruption* soon follows the fever, beginning in *red spots*, which rapidly coalesce and spread; a sense of *heat*, *tension* and *tingling* is caused by the *great œdema*, which presents a *tense*, *shiny* appearance, the swelling being so great at times as to close the eyes and distort the features. In many cases *small vesicles* develop, which may coalesce, forming *blebs*, of considerable size, containing a clear yellow serum. After five or six days the eruption begins to subside, the symptoms abate, the part affected becomes tender, and there is moderate desquamation.

During the height of the attack *albumen* appears in the urine, so that the possibility of *uræmic* symptoms must be remembered.

When extensive *infiltration into the areolar tissue* occurs, the

swelling and tension become greater, and it is termed *phlegmonous erysipelas.*

When the *eruption spreads* to different parts of the body, it is termed *erysipelas ambulans.*

Complications. *Thrombosis* of cerebral capillaries or sinuses, or as it is sometimes called, "erysipelas of the brain," is explained by the intimate anatomical connection of the facial vein with the pterygoid plexus and cavernous sinus.

Œdematous laryngitis, from extension to the larynx.

Pneumonia, pleurisy and meningitis are frequent complications.

Diagnosis. Not difficult. The fever, early spreading eruption, with burning, swelling, tension and tingling, and albuminous urine, separate it from the other *eruptive fevers* and *erythema.*

Prognosis. Usually favorable. Unfavorable if it attack drunkards; if it becomes gangrenous; if thrombosis of sinuses occur, or if it extends to the larynx.

The convalescence, even from the mildest attack, is slow, the patient continuing weak and anæmic for a long time.

Treatment. Mildest cases only require a *laxative*, nourishing diet, and locally *vaseline* or *bismuth oleat.*, to modify the heat and burning.

According to Reynolds, *aconitum* will cut short an attack. He administers ♏ ½–j, every fifteen minutes for the first two hours; then in hourly doses, until the surface is moist and the temperature lowered. The author corroborates this plan, from a personal experience.

In severe cases, *tinct. ferri chlor.*, gtt. xx–xxx, every third hour, well diluted. Also *quinina* in gr. ij, every third hour. *Ext. belladonnæ*, gr. ¼, added, with benefit. The diet from the onset should be of the most nourishing character, and administered at regular intervals.

Prof. DaCosta reports excellent results in cases with a *rapid spreading* tendency, from the use of *pilocarpinæ hydrochloras*, gr. ⅙, hypodermatically or *ext. pilocarpi fluidum*, gtt. xx–xl, every two hours.

Cerebral symptoms, *stimulants, opium and chloral.*

Extension to *throat, argenti nitras*, brushed over parts.

Locally, soothing applications are indicated, to wit: *Vaseline, ung. zinci oxidi, ol. olivæ cum glycerinæ*, or *bismuth oleat.*

In *phlegmonous* variety, *argenti nitras*, ℈ j, *spts. ætheris nitrosi* ʒ ij, brushed over and beyond the affected part, with the internal use of large doses of *quinina, ferrum* and *stimulants.*

DENGUE.

Synonyms. Break-bone fever; neuralgic fever; dandy fever. The word *dengue* is pronounced *dangay*.

Definition. A nacute, epidemic, febrile disease, consisting of two paroxysms of fever with an intermission. The first paroxysm is characterized by high fever, distressing pains in the joints and muscles, and a peculiar eruption; the second paroxysm is characterized by a milder fever, an eruption of different character, attended with intense itching, by some recurrence of the joint pains, and by debility.

Cause. Unknown; but it is evident that a peculiar condition of the atmosphere has some influence in its development.

Symptoms. Onset sudden, *fever*, 103° to 105°, intense *headache burning pains in temples*, *backache*, severe *aching* and *swelling of the joints* and *stiffness of muscles*, nausea, vomiting, constipation, and the appearance of a *rash*, resembling scarlatina, from which the disease has been mistaken for scarlatinal rheumatism. After some hours to two or three days, a distinct *intermission* obtains, of one or two days' duration.

The onset of the second paroxysm is also sudden, but the symptoms are much less severe, although the patient is greatly *debilitated*; it is at this time that the characteristic eruption appears, being either *erythematous* or *rubeolous*, and attended with *intense itching*, remaining for about two days, when desquamation occurs and convalescence is established, but is prolonged by the great debility of the patient. Average duration of the disease eight days. *Relapses are common.*

Diagnosis. Most apt to be mistaken for *acute articular rheumatism*, especially during the *first paroxysm*, but the course of the disease and the epidemic influence should prevent such an error.

The eruption might mislead for *scarlet fever* or *measles*, were it not for the severe joint and muscular pains.

Prognosis. Favorable.

Treatment. *No specific.* Entirely symptomatic.

At the onset, free *purgation and diaphoresis.*

For the *fever*, *quinina*, gr. v. every five hours.

For the *pains*, *opium* or *acidum salicylicum.*

For the *itching*, lotion of *acidum carbolicum.*

DISEASES OF THE MOUTH.

CATARRHAL STOMATITIS.

Synonyms. Simple stomatitis; erythematous stomatitis; catarrh of the mouth.

Definition. An acute catarrhal inflammation of the whole or a portion of the mucous membrane of the mouth and tongue, characterized by redness, swelling and disordered secretion. Most common in infants and children.

Causes. Introduction of hot and irritating substances into the mouth; difficult dentition; secondary to disorders of the stomach, measles, scarlet fever or variola.

Pathological Anatomy. The buccal mucous membrane and tongue have a dark red appearance, are much swollen, the tongue often appearing as if too broad to lie between the teeth, the sides showing the impressions of the teeth; the secretions are at first lessened, afterwards increased, a turbid mucus covering the cheeks, gums and tongue, thus giving a *coated tongue*.

Symptoms. Oral catarrh begins with a *burning, smarting pain*, and *tension* in the mouth, in those old enough to describe their suffering. Very young children *refuse to nurse* or allow their mouth to be touched, have *slight fever*, disordered stomach, are *fretful* and *sleepless, craving cooling drinks*.

The sense of taste is blunted, and there is usually an unpleasant bitter taste in the mouth.

If the catarrh becomes *chronic*, the breath has a fetid odor and the tongue is coated in the morning, the taste is disordered, and there is generally more or less depression of spirits.

Diagnosis. If the buccal cavity be examined, the condition is readily discerned.

Prognosis. Recovery is the rule for the acute variety.

The *chronic* cases are usually due to the use of tobacco or alcohol, and are only modified by the absolute withdrawal of the exciting cause.

Treatment. The most important point in the treatment is the removal of the exciting cause, attention to the secretions and diet.

Locally—

℞. Sodii boratis..... ℥iss
Aquæ distillat..... f℥j
Mel. rosæ..... f℥j.

FOLLICULAR STOMATITIS.

Synonyms. Aphthæ; vesicular stomatitis; croupous stomatitis.

Definition. An acute inflammation of the follicles and mucous membrane of the mouth and tongue, characterized by a *fibrinous* or *croupous exudation;* the exudation first appearing in *isolated spots* (*aphthæ discrete*), afterwards *coalescing*, and forming large and irregular-sized patches (*aphthæ confluens*), which rupture, leaving an ulcer, which slowly heals.

Causes. A disease principally of childhood. Difficult dentition; disorders of digestion; uncleanliness, such as neglect to rinse the child's mouth after nursing; with measles and diseases of the buccal cavity.

Pathological Anatomy. Begins as a small, whitish papulo-vesicular elevation, semi-transparent, hard and tender, with a distinct red zone about their base; there may be as few as six or as many as twenty; they may remain isolated (*aphthæ discrete*) or coalesce (*aphthæ confluens*); they are regarded as either a peculiar deposit or a local croupous exudation. After a day or two they rupture, leaving an irregular white or grayish ulcer, which slowly heals. The seat of the affection is the internal surface of the lips and cheeks, the gums, tongue and roof of the mouth.

Symptoms. In infants, the *pain* is so severe that the child refuses to nurse. In older children, *pain* from *talking*, *mastication* and *deglutition*. *Salivation* is marked, the saliva dribbling from the mouth. There is slight *feverishness*, *fretfulness* and *sleeplessness*. *Digestion* is impaired, and quite commonly *diarrhœa* occurs. A *disagreeable*, *penetrating odor* escapes from the buccal cavity.

Diagnosis. Impossible to confound with any other affection if the buccal cavity is examined.

Prognosis. Always favorable.

Treatment. Removal of the exciting cause. Attention to the *dietary* and the secretions is paramount.

Internally, excellent results follow the use of *potassii chloras*, gr. j to v, every three or four hours, according to the age. Protracted cases require tonic doses of *quininæ sulphas*.

Locally, good results are obtained from strong solutions of *potassii chloras*, *infusum coptis* or *bismuth*, applied directly to the ulcers.

ULCERATIVE STOMATITIS.

Synonyms. Diphtheritic stomatitis; gingivitis ulcerosa.

Definition. An acute diphtheritic inflammation of the mucous membrane of the mouth, continuing until extensive and unhealthy *ulceration* occur. It usually begins on the margin of the *lower gums*, and often extends to the lips, cheeks or tongue.

Causes. Usually seen in children only. Most frequently in the families of the poor, the result of unfavorable hygienic surroundings, personal uncleanliness and poor food. Often seen in those reduced by severe acute disease. Perhaps contagious, as *epidemics* are not rare.

Pathological Anatomy. The *gums* first appear congested, swollen, bleeding readily and separated from the teeth; soon a firmly adherent deposit in the form of patches appears, at first whitish, speedily becoming gray or even black, from disintegration, becoming soft and pulpy, the separated slough leaving irregular-shaped *ulcers*, with raised margins, from œdema of the surrounding tissue. They are not deep, and their surface is covered with a pulpy, yellowish substance. The morbid process usually extends to the inner side of the lips, cheeks and to the tongue.

Symptoms. *Pain* constantly, aggravated by *mastication* or *deglutition;* food and drink must be of the blandest character. The *mouth* is *hot*, the *saliva dribbles* away, mixed with *blood* and shreds of *pulpy matter*, the *breath is fetid*, the appetite, digestion and bowels disordered. The patient is feverish, fretful and sleepless.

There is always enlargement and tenderness of the submaxillary glands.

The affection is often associated with *entero-colitis*.

Diagnosis. Apt to be confounded with gangrenous stomatitis, than which, however, there is less constitutional symptoms and a slower course of the malady.

Prognosis. Favorable. If promptly and properly treated, the ulcerated surface rapidly heals, although quite commonly some teeth are lost.

Treatment. The etiology of the affection must be borne in mind and remedied. Strict attention to the diet, to the secretions, and absolute cleanliness.

Internally, the prompt use of *potassii chloras*, gr. j-v., frequently repeated, often acts like a specific. The general health often calls for *quinina*, *ferrum* and *stimulants*.

Locally, a strong solution of *potassii chloras*, or keeping the ulcer covered with *bismuth*, or frequent applications of *alumen exsiccatum* are valuable. Cases which resist these remedies should be given the following combination, proposed by the late Dr. Dewees:—

℞. Cupri sulphat..... gr. x
Pulv. cinchonæ opt..... ʒij
Pulv. g. arab..... ʒj
Mel. commun..... fʒij
Aquæ font..... fʒiij. M
Ft. sol.

SIG.—The ulceration to be touched twice daily, with the point of a camel's-hair pencil.

If a spreading tendency occur, the application of *argenti nitras dilutus*, or a diluted solution of *acidum nitricum* is indicated.

THRUSH.

Synonyms. Muguet; sprue; white mouth.

Definition. An inflammation of the mucous membrane of the mouth, associated with or caused by the growth of a *parasitic plant*, the *oïdium albicans;* characterized by pain, disorders of digestion and of the bowels.

Causes. The development of the thrush-fungus, *oïdium albicans*, is promoted by all those conditions designated as unhygienic, by debilitated conditions of the general system, and by neglect to thoroughly rinse the mouth after nursing or bottle feeding.

The age is considered a predisposing cause, seldom being seen after two years of age. In adults, only toward the end of cancer or consumption.

Pathological Anatomy. The mucous membrane of the mouth assumes a dark red appearance in isolated patches, on which *whitish points* appear, which rapidly coalesce into large areas. They closely resemble curdled milk, from their soft consistency. These whitish points consist of epithelium and fat, in which are embedded the sporules and filaments of the fungus.

The deposit first appears about the angles of the mouth, soon extending to all parts of the cavity, often to the pharynx and œsophagus.

The mouth is usually swollen and tender, the breath often fetid.

Symptoms. *Pain*, aggravated by *nursing* or *mastication*. The lips are swollen, the *saliva* is *increased*, the *breath hot* and somewhat

fetid. There is usually increased temperature. *Diarrhœa* is frequent, the stools green and sour, causing an erythema of the buttocks.

Diagnosis. The curd-like appearance of the deposit, showing the presence of parasites upon microscopical examination, will prevent error.

Prognosis. Favorable, unless occurs toward the termination of exhausting diseases.

Treatment. Absolute cleanliness of the mouth is all important.

Internally, remedies should be directed to the removal of the disorders of the gastro-intestinal tract.

Locally, solutions of *sodii boras* answer every indication, the best vehicle being *glycerinum*, and not *mel* or *saccharum*, a good formula being—

℞. Sodii boratis..... ʒj
Glycerini..... fʒij
Aquæ..... ʒvj. M.

SIG.—Thoroughly applied four or five times daily, and continued for a week after the disappearance of the affection.

GLOSSITIS.

Definition. An inflammation of the parenchyma of the tongue; characterized by great swelling of the organ, with difficult mastication, deglutition and vocalization.

The affection may be either *acute* or *chronic*.

Causes. The *acute variety* is usually the result of some direct irritation to the tongue, such as direct injury, contact of boiling liquids, the action of acrid or corrosive substances, or the sting of the tongue by an insect, such as the bee or wasp.

The *chronic variety* is generally circumscribed; it may follow the acute; be due to the sharp edges of the teeth, or the use of a tobacco pipe.

Pathological Anatomy. *Acute glossitis* begins with intense hyperæmia, redness and swelling of the organ; the size often becomes so great that the tongue is too large for the mouth, and thus protrudes between the teeth; its surface is covered with a thick secretion, and it becomes of a pale or grayish color. The swelling may rapidly decline, or abscesses may form, which leave a more or less decided depressed cicatrix.

Chronic glossitis occurs usually along the edges, the cicatricial changes being in circumscribed hard spots. If the entire organ is

affected with chronic inflammation, the action is superficial, and has been termed "psoriasis of the mouth."

Symptoms. *Acute glossitis* begins rather abruptly with *fever*, increased *pulse*, *restlessness*, *anxiety*, *enlargement* of the *tongue*, the sensation of *heat* in the mouth, with *pain*, and *increased* flow of *saliva*. *Mastication* and *deglutition* become difficult if not impossible, the *voice muffled* and *dyspnœa* decided. The *glands* at the angles of the jaw are *enlarged*, which, in turn, compresses the vessels of the neck.

When *suppuration* supervenes, the constitutional symptoms become severe and the oral symptoms are intensified. *Death* has occurred from suffocation in severe cases.

Chronic glossitis presents *pain* as the chief symptom, aggravated by movements of the organ.

Diagnosis. The rapid course of *acute glossitis* should prevent its being mistaken for any other affection.

Chronic glossitis, if severe, might be mistaken for *cancer* of the tongue, although the slow and mild progress of the former contrasts strongly with the rapid, severe and painful course of the latter, with its marked constitutional symptoms.

Prognosis. *Acute glossitis* usually terminates in recovery within a week, although the danger of suffocation must always be remembered.

Chronic glossitis is an incurable malady in the majority of instances.

Treatment. For *acute glossitis* prompt measures are demanded.

For the *fever* and *rapid pulse*, *tinctura aconiti*, gtt. j to iij every half hour or hour until its effects are produced.

For the *enlargement* of the organ, either *ice* constantly applied internally and externally, at the angles of jaw, or the persistent use of *hot water* held in the mouth and externally; if prompt relief does not follow these measures, or if the case is an aggravated one, the prompt *deep scarification* of the tongue must be resorted to.

If *abscesses* form, promptly open them and administer *quinina*.

If *suffocation* appear imminent, *tracheotomy* must be performed.

For *chronic glossitis*, the removal of the exciting cause and the local use of *argenti nitras* to the ulcerated edges.

"For psoriasis of the tongue," the local use of *argentum* or *acidum carbolicum*.

The general health must always receive due attention.

DISEASES OF THE STOMACH.

ACUTE GASTRIC CATARRH.

Synonyms. Acute mild gastritis; gastric fever; bilious fever; acute indigestion; subacute gastritis.

Definition. An acute catarrhal inflammation of the mucous membrane of the stomach; characterized by feverishness, loss of appetite, nausea, with occasional vomiting, painful digestion, irregularity of the bowels, and in severe attacks, vertigo (*stomachic vertigo*).

Causes. Deficient quantity of or quality in the gastric juice. Errors in diet, insufficient mastication of food, swallowing liquids which are either too hot or too cold, and especially, the abuse of alcoholic drinks.

Often secondary to infectious diseases, such as scarlet fever, measles, smallpox, diphtheria and typhoid fever. Occasionally the result of sudden changes of temperature.

Pathological Anatomy. The mucous membrane is irregularly congested and engorged, and covered with a grayish, semi-transparent and *tenacious mucus*, having an *alkaline* reaction. The *true gastric juice* is secreted in *lessened amount* or is *entirely suspended*.

Symptoms. At first, *loss of appetite*, at times, *disgust for food*, heavily coated tongue, bad *taste* and *breath*, persistent *nausea*, and at times, *vomiting*, first of undigested food, then viscid mucus, acid and bitter, and finally, bilious matter; moderate *irritative fever* is present, with *headache*, considerable *thirst* and flashes of heat with sensations of burning in the palms of the hands and soles of the feet; *acid drinks* eagerly sought after; *digestion imperfect*, giving rise to *pain*, *tenderness*, *feeling of weight* and *eructations*; bowels often loose, sometimes, however, constipated. *Vertigo* with *pain* in the *nucha*, is a prominent symptom in many cases, causing great anxiety. The *urine* is scanty, containing *lithates* and pigment.

The symptoms are aggravated by errors in diet, and if saccharine or fatty articles are taken, *heartburn* occurs.

Towards the termination of an attack *herpetic* eruptions appear about the mouth.

Diagnosis. Acute gastric catarrh with fever, may be confounded with *remittent* and *typhoid fever* of the first week, but all doubts will disappear as these maladies develop.

The *vertigo* may be mistaken for *cerebral disease*, but the disappearance of this symptom when stomachic treatment is inaugurated dispels all doubt.

Prognosis. Favorable. Duration about a week; recovery slow, even under treatment, as far as perfect digestion is concerned.

Treatment. Give the stomach as complete *rest* as possible. If the stomach is overloaded, an *ipecac emetic* is indicated, or if vomiting has begun, it may be encouraged by swallowing large draughts of warm water, which will act as a sedative if the stomach be empty. *Irritability of the stomach* is readily controlled by—

℞. Hydrarg. chlor. mitis..... gr. $\frac{1}{20}$–$\frac{1}{10}$
Sodii bicarb..... gr. ij
Pulv. aromat..... gr. v. M.
Every two hours,

which has the additional advantage of relieving the bowels, or—

℞. Bismuthi subnit..... gr. xv
Acid. hydrocyanici, dil..... ♏ij
Mucil. acaciæ..... f℥ ss
Aq. menth. pip..... f℥ iss. M.
SIG.—Every two or three hours.

Weak *alkaline mineral waters* or *liquor calcis*, should be freely used.

After the acute symptoms have subsided—

℞. Tinct. nucis. vomicis..... gtt. iv–x
Acid. hydrochlor. dil..... gtt. x
Glycerini..... ℥ ss
Aquæ lauro cerasi..... f℥ iss. M.
Before meals, will improve the appetite and digestion.

ACUTE GASTRITIS.

Synonym. Toxic gastritis.

Definition. An acute and violent inflammation of the mucous, submucous and muscular coats of the stomach, with loss of tissue; characterized by great pain, constant vomiting of blood-streaked or bloody mucus and symptoms of collapse.

Causes. Ingestion of irritant and corrosive poisons, to wit: mineral acids, arsenic, corrosive sublimate, copper and carbolic acid.

Pathological Anatomy. The mucous membrane is vividly red and injected, more marked at some portions than at others; it is soft and friable; erosions are irregularly scattered, and the submucous, muscular, and at times serous coats show decided destructive changes. The gastric tubules are destroyed in large numbers. In many cases the *oral* mucous membrane presents signs of severe inflammation.

Symptoms. Immediately or soon after swallowing the irritant there ensues a deadly *nausea*, rapid and *persistent vomiting;* first, of the contents of the stomach acted upon by the poison; afterwards, shreds of mucous membrane and blood clots; great *anxiety* and *depression*, a *weak, rapid pulse, slow* and *shallow respiration, cold skin*, covered with a *cold sweat, intense burning heat* at the epigastrium, *thirst* with *burning* in the *fauces* and *gullet*, and *exhaustive purging; the features* are *more* or *less retracted* or *sunken;* these symptoms terminating in collapse and death, or slow convalescence and recovery with a crippled stomach.

A *diagnosis* of the character of the poison swallowed is often afforded by the *stain* of the lips, face and mucous membrane, to wit: *sulphuric acid*, blackish eschar; *nitric acid*, yellowish eschar; *caustic potash*, spreading widely and softening the tissues; *corrosive sublimate*, whitish or glazed; *carbolic acid*, white and corrugated.

Prognosis. Very grave. Majority perish from shock, and destruction of mucous membrane, which prevents nourishing. Early treatment when no perforation of the walls of the stomach and recovery is possible, the organ being ever after much weakened.

Treatment. *At once*, hypodermatic injection of *morphina*, repeated at regular intervals.

Vomiting should be encouraged by the free use of *demulcents*.

If the case be seen within a short period of the swallowing of the poison, the proper antidote should be used; but if some hours have elapsed, it is useless. *Ice*, internally and externally, gives great relief. The stomach should be washed out with the stomach pump, thereby removing any remaining poison, while at the same time it acts as a sedative to the inflamed membrane; also *bismuthi subnit*, grs. xx–xxx every hour or two, is beneficial.

Milk and *lime water* is the only food that should be given by the stomach, *enemata* being used to support the system.

CHRONIC GASTRIC CATARRH.

Synonyms. Chronic gastritis; chronic dyspepsia; drunkards' dyspepsia.

Definition. A chronic catarrhal inflammation of the stomach, with thickening of the coats and atrophy of the gastric glands; characterized by tenderness over the epigastrium, impaired appetite, painful and imperfect digestion, thirst, and great depression of the mental powers.

Causes. Repeated attacks of acute gastric catarrh; habitual use of spirituous liquors; disease of the heart, lungs, pleura or liver, producing chronic congestion of the stomachic vessels; cancerous or other degenerative diseases of the stomach.

Pathological Anatomy. The mucous membrane is of a brownish or slate color, elevated into ridges from hypertrophy, the result of constant congestion; the peptic glands first increase in size, then undergo granular change, atrophy of their cells resulting. The mucous membrane is covered with a thick, alkaline tenacious mucus. These changes may affect the entire organ or be limited in extent.

Symptoms. *Loss of appetite*, disagreeable feeling of *fullness* in the stomach, *tenderness* at the epigastrium, but slightly influenced by eating, *prominence* of the epigastrium, from distention by decomposing gases, occasional *nausea* and *vomiting*, the latter more common in drunkards, occurring on arising, termed *morning vomiting* and consisting of glairy mucus raised after great retching; *constant thirst*, water and at times stimulus being craved; often great *burning* at the pit of the stomach, the result of acidity; *bowels constipated*, *urine* high colored. A feeling of *mental depression* and *sleeplessness*, with occasional attacks of *vertigo*, add to the misery of the patient The imperfect digestion causes more or less *loss of flesh*, the fat disappearing, the muscles relaxed and the skin dry.

Prognosis. Favorable as to life, but not as to complete recovery, the atrophied glands more or less hindering digestion and assimilation.

Treatment. Regulated diet. Avoid fatty, saccharine and starchy food. Also all *tonics*, *bitters*, or *acids*, *unless specially indicated*.

Locally, few *leeches*, *dry cups*, a *blister*, or *emplastrum belladonnæ*.

Purgatives are doubly indicated; *first*, relieving the constipation; and *second*, clearing the stomach of the tenacious mucus, which

neutralizes what gastric juice is secreted. Appropriate purgatives are the natural mineral waters, such as Saratoga or Friedrichshall, or—

℞. Magnesii sulph..... ℥ i–ij
Sodii et potass. tart..... ℥ ss–j
Acid. tartaric..... gr. xx. M.

Dissolved in a glass of water and drank, effervescing, an hour before breakfast.

Digestion may be temporarily aided by *pepsinum* or *lactopeptin* with the meals.

Great relief follows the systematic drinking of one-half to one pint of *hot water* an hour *before* meals.

For the morbid condition itself may be used, *liq. potassii arsenitis*, gtt. i–ij *before meals*, or *bismuth subnit.*, gr. x–xx, before meals, to which may be added *sodii bicarb.*, gr. v ; or *argenti nitrat.*, gr. ¼–⅓, or *argenti oxidum*, gr. ½–j, in pill, *before meals*.

Pain is so severe in some cases that resort must be had at times to *opium* or *belladonna* in small doses, after meals.

Rest of the body is almost as imperative as rest of the stomach.

GASTRIC ULCER.

Synonyms. Chronic gastric ulcer ; perforating ulcer.

Definition. A solution of continuity, involving the mucous membrane and one or more layers of which the walls of the stomach are composed ; characterized by pain, disorders of digestion and vomiting of blood.

Causes. Anæmia or its sequelæ the chief factor. Most common in young anæmic women. Virchow claims that *emboli* or *thrombi* form in the nutrient gastric arteries which have lost their tonicity, an ulcer forming at the point of obstruction.

Pathological Anatomy. In the majority of cases the ulcer is solitary. The posterior wall near the pylorus is the most common site.

In a typical case there is a circular hole, with sharp borders in the serous coat of the stomach ; the loss of substance is greater in the mucous membrane than in the muscular coat, and greater in this than in the serous coat, so that the ulcer looks like a shallow funnel, the apex at the outer wall, the base at the inner wall of the stomach ; it is first round, growing, becomes elliptical, bulging at portions, becoming irregular ; size, from ¼–½ inch in diameter. When the ulcer heals before all the coats are perforated, a distinct cicatrix marks the

location. During its progress nutrient vessels are eroded, causing profuse hemorrhage. Chronic gastric catarrh complicates the majority of cases.

Symptoms. More or less prominent symptoms of indigestion. *Pain* constant at the "pit of the stomach," increased by taking food, especially of an irritant kind, the pain often felt in the back, of a *burning, gnawing* character. *Tenderness* at one or more points, extending from the front to the back. *Vomiting* is almost as constant as pain, coming on soon after eating, if the ulcer is at the cardiac orifice, an hour or so after if it is at or near the pylorus. Rejected matter may be undigested or partly digested food, or simply acrid mucus. *Vomiting of blood* in large quantities and arterial in color is almost diagnostic of gastric ulcer; the blood may be dark in color if it has remained in the stomach some time before being rejected.

Severe and frequent attacks of *gastralgia* may add to the suffering of the patient. The general condition of the patient is not significant, some being greatly debilitated, while in others the nutrition is but little deranged.

Duration. The ulcer is slow in forming, and runs a very chronic course, an average duration being, perhaps, a year. Cases are recorded in which the disease has suddenly developed and terminated by *perforation, peritonitis* and *death* within two weeks, but they are rare.

Diagnosis. *Duodenal ulcer* presents symptoms so akin to those of gastric ulcer that a differential diagnosis is impossible.

Chronic gastritis is often confounded with gastric ulcer; the distinctive points are, absence of vomiting of blood, no localized constant pain aggravated by food, and no tenderness in the back; while the symptoms of indigestion are marked and persistent, with, as a rule, a history of spirit drinking, and the age of the patient—middle life; ulcer in the young.

The points of distinction between *gastric cancer* and *gastralgia* will be pointed out when treating of those affections.

Prognosis. Not very unfavorable. Recoveries are frequent. The dangers are *perforation, peritonitis* or *fatal hemorrhage.*

Treatment. Give the stomach as complete a rest as possible; this is accomplished by *rectal* alimentation, or where it cannot be carried out, exclusive *milk* diet, adding *lime water*, to enable the stomach to better retain the milk; the amount of milk should be one

or two ounces every two hours. *Rest in bed* is paramount, and should be insisted upon.

For *pain*, small doses of *morphina* should be used as needed.

For *hemorrhage*, hypodermatic injections of *ergota* are most reliable. *Plumbi acetas*, gr. j–iij arrests the bleeding and exercises a favorable influence over the ulcer.

For the *ulcer*, *liq. potassii arsenit.*, gtt. j–ij every five hours, has given excellent results in several cases treated by the author; *bismuth, subnitrat.*, gr. xx–xxx, combined with *sodii bicarb.*, gr. iij–v, three times a day, often does well; *argenti nitras*, gr. ¼–⅓, every four hours, or *argenti oxidum*, gr. ss, every four hours, are at times beneficial.

If *perforation* and *peritonitis* result, full doses of *opium* are indicated.

GASTRIC CANCER.

Synonyms. Cancer of the stomach; gastric carcinoma.

Definition. A peculiar malignant growth, occurring for the most part at the pyloric extremity of the stomach, making constant progress, destroying the gastric tissues and infecting the lymphatic glands; characterized by disorders of digestion, pain, vomiting, marked anæmia, and terminating in all cases by the death of the patient.

Cause. Hereditary. Develops after forty years, for the most part.

Pathological Anatomy. Cancer of the stomach is the most common form of cancer. It is, as a rule, a primary cancer. The variety is most commonly the *scirrhus*, next in frequency, *medullary*, the least frequent, *colloid*. As regards the location, eighty per cent. occur at the *pylorus*.

It originates usually in the *tubules*, rapidly infiltrating the remaining tissues, thickening everywhere as it progresses, and either remains a hard nodulated mass or undergoes ulceration. The hard nodulated growth at the pylorus constricts the orifice, resulting in dilatation of the stomach. The lymphatic glands adjacent to the stomach are infiltrated, secondary cancers resulting. Ulceration into an artery causes hemorrhage into the peritoneum, resulting in local peritonitis.

Complications. Fatty heart; thrombosis; tuberculosis.

Symptoms. *Indigestion*, progressive in character, with *marked acidity, flatulency* and a fetid breath.

The majority of cases have *vomiting* immediately after eating, if at the cardiac orifice, and some hours after if at the pylorus, and if

much dilatation of stomach, some days after. The rejected matter is food in various stages of digestion, with frequently *black, grumous masses* of altered blood. *Pain*, marked and constant, *dull, heavy*, increased by pressure, seldom lancinating. Marked *anæmia, emaciation*, and towards the end *dropsy*, the surface having an earthy or *fawn color*. A *tumor* is found in three-fourths of the cases, occupying the epigastric region, *not moving with inspiration*.

The duration of the disease is about one year, the patient dying from *exhaustion, peritonitis* or *hemorrhage*.

Diagnosis. *Chronic gastric catarrh* differs from gastric cancer, in the absence of a tumor, bloody vomit, characteristic pain, peculiar color of the surface, dropsy and the rapid emaciation.

Gastric ulcer differs in the character of the pain, age of the patient, large amount of bloody vomit, absence of a tumor and progressive emaciation. Still the diagnosis is often difficult.

Abdominal tumors may raise the question of a gastric cancerous tumor; the points of distinction are the characteristic symptoms of gastric cancer, and that abdominal tumors, especially of the liver and spleen, the ones most apt to cause error in diagnosis, are influenced by inspiration, while *tumors of the stomach are not* so influenced.

When a scirrhus of the pylorus lies upon the aorta, a pulsation may be communicated to it, raising the question of *aneurism of the abdominal aorta*, but the expansile pulsation of aneurism (Corrigan's sign) is wanting, as are the other symptoms of the affection, and if the patient is made to rest upon his hands and feet, the stomachic tumor falls away from the aorta and pulsation ceases.

Mikuliez claims that, by the use of his *gastroscope*, regular rhythmical motions can be seen when the pylorus is not the seat of cancer, and that such movements are absent when it is the seat of cancer.

Prognosis. Unfavorable. Internal medication offers no hope, the patient usually succumbing from starvation.

Gastric carcinoma occurring under thirty years of age is rapidly fatal, not conforming to the usual symptoms as seen later in life; the characteristic cachexia is commonly absent and hæmatemesis is rare.

Treatment. We possess no means of arresting the disease. "Six operations have been practiced for the relief of stenosis of the pylorus: 1st. Pylorectomy; 2d. Gastro-enterostomy; 2d. Gastrectomy; 4th. Gastrostomy; 5th. Duodenostomy; 6th. Digital divulsion of the

pylorus." Professor Billroth has *excised* the pylorus, thereby prolonging life ten months.

For *acidity* and *fetor of the breath*, *acidum carbolicum*, gr. ¼–⅓, or *carbo animalis purificatus*, gr. x–xxx, affords some relief.

For *vomiting*, *bismuth* and *opium*, or the washing out of the stomach with the stomach pump.

For *pain*, *morphina*.

Avoid stimulants.

GASTRIC DILATATION.

Synonyms. Pyloric obstruction; pyloric stenosis.

Definition. An abnormal increase of the cavity of the stomach, with the walls either hypertrophied, or decreased in thickness; characterized by pronounced indigestion, vomiting of partly digested and partly decomposed food at intervals of every few days, and moving of flatus in the abdomen (borborygmus).

Causes. Most common, stricture of the pylorus, the result of cancer; pressure of tumor against the pylorus, preventing exit of stomach contents. Loss of muscular tone, occurring in anæmia. Prof. Bartholow cites cases resulting in excessive beer-drinkers, who drank thirty to forty glasses of beer habitually, every day.

Pathological Anatomy. When obstruction exists at the pylorus, the whole organ is dilated, with hypertrophy of the muscular layer of the stomach. In dilatation without pyloric obstruction, the muscular layer is thinner than normal, pale in color, and presents signs of fatty degeneration; the mucous membrane is also pale, thin, and without rugæ.

Symptoms. Those of the disease producing the obstruction *plus* those of obstinate chronic gastric catarrh, with *characteristic vomiting;* the cavity having a greatly increased capacity, large accumulations take place, which are rejected every few days, partly digested and partly decomposed. *Regurgitation* of partly digested aliment, acrid, acid and offensive, is very common. *Bowels constipated*, the stools hard and dry.

Physical signs of gastric dilatation are: *on inspection*, abnormal prominence of the whole epigastric region, with a tumor in the *pyloric region* which seems to be connected with the stomach; *percussion*, if empty, tympanitic note extending to or below the umbilicus, having a metallic quality; if the stomach be filled, high pitched flat note;

auscultation, splashing and rumbling sound, the succussion sound being distinct if the body be shaken.

Diagnosis. The cause being ascertained, no difficulty is experienced in making a diagnosis.

Treatment. Regulated diet. Restrict the use of fluids, using a "dry diet" almost exclusively.

If the result of pyloric stenosis, one of the operations noted in pyloric cancer may be indicated.

Regardless of the cause, washing out the stomach with the stomach pump, every day or two, gives relief, and, if no stricture, administering *strychnina* or *nux vomica*, and very favorable results may follow.

GASTRIC HEMORRHAGE.

Synonyms. Hæmatemesis; gastrorrhagia.

Definition. Gastric hemorrhage is not, strictly speaking, a disease, but a *symptom;* still, vomiting of blood occurs under such a variety of conditions, that a separate consideration is desirable.

Causes. Ulcer of the stomach; cancer of the stomach; scurvy; purpura; hemorrhagic malarial fever; congestion of the liver or spleen; vicarious at menstrual period; yellow fever.

Symptoms. Added to the symptoms of the cause of the hemorrhage, are a *feeling of faintness* and *sinking at the pit of the stomach*, followed by the ejection of blood of a *black, grumous*, or *coffee-ground* appearance. Rarely, and then generally in gastric ulcer, the ejected blood may have a *bright red* appearance, the gastric juice not having had time to act upon it. If the amount of blood escaping into the stomach is large, *blood will be voided by stool.*

Diagnosis. *Hemorrhage from the lungs* may be confounded with gastric hemorrhage. In the former, the blood is red, is coughed up, not vomited, and is associated with a history of pulmonary disease. The chief point of distinction between pulmonary hemorrhage and the vomiting of red blood is, that in the former you can discern râles on auscultating the chest, and they are absent in the latter.

Prognosis. Depends entirely upon the cause, the most unfavorable being the result of either gastric ulcer or cancer.

Treatment. Perfect rest in bed. *Ice*, swallowed and applied in bladders over the epigastrium and along the spine.

Hypodermatic of *morphina* quiets the patient's fear, and at the same time has a constringing effect upon the vessels. *Extractum*

ergotæ fluidum or *ergotin* hypodermatically after the patient is quieted, or *liquor ferri subsulph.*, gtt. j–v, well diluted by stomach.

Allow no food by the stomach for several days, nourishing the patient by rectal alimentation.

The hemorrhage controlled, the future treatment is guided by the exciting cause.

GASTRALGIA.

Synonyms. Cardialgia; gastrodynia; stomachic colic; spasm of the stomach; neuralgia of the stomach.

Definition. A painful condition of the sensory nerves of the stomach, induced by various sources of irritation; characterized by violent paroxysms of gastric pain and spasm, associated with feeble cardiac action.

Causes. The affection belongs to the group of neuralgias. The most important factor in its causation is general nervous depression; other causes are malaria, rheumatic or gouty diathesis, anæmia, and certain articles of diet.

Symptoms. Like most neuroses, gastralgia is distinguished by its *paroxysmal* character. *Romberg* thus describes an attack:—

"Suddenly, or after a feeling of pressure, there is severe *griping pain* in the stomach, usually extending to the back, with a *feeling of faintness*, shrunken countenance, cold hands and feet, and an *intermittent pulse*. The *pain* becomes so excessive, the patient cries out. The *epigastrium* is either *puffed out*, like a ball, or *retracted*, with tension of the abdominal walls. There is often *pulsation in the epigastrium*. External pressure is well borne, and not unfrequently the patient presses the pit of the stomach against some firm substance, or compresses it with his hands. *Sympathetic pains* often occur in the thorax, under the sternum, and in the œsophageal branches of the pneumogastric, while they are rare in the exterior of the body."

"The attack lasts from a few minutes to half an hour; then the pain gradually subsides, leaving the patient much exhausted; or else it ceases suddenly, with eructation of gas or watery fluid, or with vomiting, and with a gentle, soft perspiration, or with the passage of reddish urine."

Besides such severe attacks, we often see *painful sensations in the epigastrium*, of various degrees of intensity, with passing faintness or sinking at the "pit of the stomach."

Diagnosis. From *myalgia of the abdominal muscles*, by the pain of gastralgia being more acute and lancinating, accompanied by nausea and vomiting and the absence of tenderness on pressure.

From *intercostal neuralgia*, by the fact that in this affection the pain is in the left hypochondrium, with painful spots along the course of the nerve trunk and at the spine, and absence of nausea and vomiting.

From *gastric cancer*, by the age, character of the vomited matter, constancy of the pain, the cachexia, emaciation *and the tumor*.

From *gastric ulcer*, by the localized pain and its constancy, with tenderness and vomiting of blood, and constant dyspeptic symptoms, which is not the case in gastralgia.

Prognosis. As to perfect recovery, unfavorable, but not dangerous to life. A chronic affection, in that attacks are prone to return from time to time. The cause has much to influence a radical cure.

Treatment. *For the paroxysm*, hypodermatic of *morphina*, gr. $\frac{1}{12}$–$\frac{1}{4}$, or the stomachic administration of the "compound of anodynes," the so-called *chlorodyne*, in doses of ♏x-xxx p. r. n. The relief afforded by opium in some form is so decided that it is prone to lead to the opium habit when the attacks are frequent.

In the interval, regulated diet and one or more of the following remedies: *quinina*, *arsenicum*, *bismuth*, *ferrum*, *liq. iodi. comp.*, or small doses of *potassii iodidum*.

ATONIC DYSPEPSIA.

Synonyms. Dyspepsia; indigestion; heartburn; pyrosis.

Definition. A functional derangement of the stomach, with either deficient secretion in the *quantity* or *quality* of the gastric juice; characterized by disorders of the functions of digestion and assimilation.

Causes. Imperfect mastication; bolting of food; eating large quantities of food; same diet long continued; depressed nervous system, from worry and fatigue. It is often inherited.

Symptoms. *Perverted appetite*, capricious or lost; *difficult digestion*, a feeling of weight or fullness in the epigastrium; *acidity*, from the decomposition of albuminoids; *heartburn, flatulency, regurgitation, or vomiting* of portions of partly digested food or acrid fluid—*water brash* or *pyrosis*. *Pain* or *soreness* at the "pit of stomach" during digestion. *Tongue* either clean or broad, flabby and pale, showing marks of the teeth. *Bowels* constipated; *urine* generally scanty and high-colored, with excess of urates or oxalates, or, in persons of nervous

type, it is pale, of low *sp. gr.*, and contains phosphates. *Drowsiness* after meals, with *wakefulness* at night, *defective memory*, *headache* and absent mental vigor, with *flashes of heat*, followed by more or less perspiration. Palpitation of the heart with irregularity in rhythm.

Prognosis. With careful living, dyspepsia, functional in character, is curable. It has been aptly termed "remorse of the stomach."

Treatment. The most important indication is to regulate the diet. *Forbid saccharine, starchy or fatty articles of food.* Eat small amounts at a time. Perfect insalivation and mastication. *Rest after eating*, from a half to an hour. Allow but small quantities of liquids with the meals. In the vast majority of cases *forbid the use of stimulants with the meals.*

Aid *digestion* with *pepsinum*, with or without *acidum hydrochloricum dilutum.*

Stimulate stomachic peristalsis with *nux vomica*, *gentian* or *cinchona.*

For *acidity*, *alkalies* at times of acidity.

For *pyrosis*, *bismuth* and *pulvis aromaticus*, in large doses.

For *constipation*, *pil. rhei comp.*, at bedtime.

For *anæmia*, *massa ferri carbonatis or ferri lactas.*

For *flatulency*, *tinctura nucis vomicæ*, before meals, *carbo animalis purificatus*, or *acidum carbolicum.*

DISEASES OF THE INTESTINAL CANAL.

INTESTINAL INDIGESTION.

Synonym. Intestinal dyspepsia.

Definition. A derangement in the functions of intestinal digestion, resulting in the more or less complete decomposition of the *chyme*, from defects in the pancreatic, biliary or intestinal secretions, or from deficient peristalsis, one or more, singly or combined; characterized by abdominal pain, distention, tympanites, nervous perturbation, anæmia and emaciation.

Causes. Imperfect diet; over eating; anæmia; deficient exercise; worry; immoderate use of tobacco; diseases of the intestinal tract, liver or pancreas. Frequently inherited.

Symptoms. Intestinal indigestion may be either *acute* or *chronic*, the latter the more common.

Acute variety, the result of an irritant in the duodenum; rapidly developed *pain*, *flatulency*, *borborygmi*, slight *feverishness*, coated tongue, loss of appetite, headache, *pains in the limbs*, usually terminating in a mild attack of *diarrhœa*.

If the attack develops rapidly, the sudden formation of gases results in a paroxysm of *colic*.

Severe attacks are associated with disordered hepatic function, to wit: light-colored stools, slight jaundice and high-colored urine, the bowels constipated.

Chronic variety, resulting from a greater or less decomposition of the partly altered food from the stomach. *Pain*, varying in character, occurring from two to four or six hours after meals, with *slight tenderness* and some *fullness* in the right hypochondrium, epigastrium or the umbilical region. *Tympanites* and *borborygmi* are marked, the result of gaseous accumulations which have resulted from the decomposition of the intestinal contents. *Dyspnœa*, the result of pressure on the diaphragm, is of frequent occurrence. Marked nervous phenomena develop, the result of the anæmia from deficient assimilation and from the depressing influence on the nervous system of the absorption of the "gases of decomposition;" *depression of spirits*, *hypochondriasis*, *sleeplessness*, *disturbing dreams*, *headache*, *vertigo*, *buzzing in the ears*, *muscæ volitantes*, *deficient mental application*, *cardiac irritability*, *numbness* and *tingling in the extremities*, anomalous *pains* throughout the *body*, and in marked cases, attacks of *fainting*, *epileptiform* and *cataleptic* attacks.

The *skin* is harsh and dry, the *bowels* are sluggish or *constipated*, the *urine* is high colored, of increased density, decidedly acid, and on cooling deposits lithates, uric acid and oxalate of lime crystals.

Functional derangement of the liver follows after a time, adding to the general distress.

Anæmia and *emaciation* result if the attack is protracted.

Diagnosis. With our present knowledge it is usually impossible to designate forms of intestinal indigestion due to defects in the quantity or quality of either the pancreatic, biliary or intestinal secretions.

Acute intestinal indigestion differs from gastric indigestion in the time of the various phenomena, in the latter the symptoms appearing almost immediately after meals, while in the former not appearing until two, four or six hours after.

Chronic intestinal indigestion may mislead the physician if the

various nervous phenomena are of a marked character, and a careful history of the case is not developed.

Prognosis. Favorable if proper and early treatment is inaugurated, unless the result of an organic lesion.

Treatment. *Acute variety*, the result of undigested food is best treated by *opium* in some form, warmth to the abdomen, and a prompt cathartic to cause its rapid expulsion.

Chronic variety. Of the first importance is the diet, which should be restricted in amount and confined almost entirely to such articles as are readily digested in the stomach.

The hepatic, pancreatic and intestinal secretions should be stimulated by a course of *alkalies*, one of the most efficient being *sodii phosphas.*, ʒj–ij, three times a day.

Aid intestinal digestion by the administration of the *liquor pancreaticus*, fʒj–iv, or the *extractum pancreatis*, gr. ij–vj, with *sodii bicarbonatis*, gr. v–x, two or three hours after meals.

For constipation, bitter waters, such as Friedrichshall, Pullna, or Hunyadi Jânos, or the *pilulæ rhei compositæ*, one or two at bedtime.

INTESTINAL COLIC.

Synonyms. Enteralgia; tormina; gripes.

Definition. A spasmodic contraction of the muscular layer of the intestinal tube; characterized by acute paroxysmal pain near the umbilicus, relieved by pressure, and associated with feeble cardiac action.

Causes. Constipation; presence of indigestible food; collections of flatus; an abnormal amount of bile discharged into the intestines; lead poisoning; syphilis; chronic malaria; hysteria.

Symptoms. *Romberg* thus describes a paroxysm: "There are attacks of *pain*, spreading from the navel over the abdomen, alternating with intervals of ease. The pain is *tearing*, *cutting*, *pressing*, most frequently *twitching*, *pinching*, accompanied by peculiar *bearing down pains*. The patient is restless, and seeks *relief* in changing his position and in *compressing the abdomen;* his surface may be cold and his features pinched. The *pulse is small and hard.* The abdomen is tense, whether puffed up or drawn inward. There are *often nausea* and *vomiting*, and *desire* for *stool.* There is usually constipation, but sometimes the bowels are regular or even too loose.

Duration from a few minutes to several hours, relaxing at intervals. It ceases suddenly, with a feeling of the greatest relief, although some soreness remains for a few days."

Lead colic is always preceded by symptoms of lead poisoning, to wit: slate-colored skin, dark gums, showing blue line, heavy breath, with sweetish metallic taste, obstinate constipation, impaired appetite, slow pulse and contracted abdominal walls.

Diagnosis. *Gastralgia* differs from colic, in the pain being in the epigastric region and associated with disorders of digestion.

In *hepatic colic*, or the passage of gall stones, the pain is in the hepatic region, attended with soreness over the gall bladder, and retching and vomiting, followed by jaundice and the presence of bile in the urine.

In *nephritic colic* the pain follows the course of one or both ureters, shooting to loins and thigh, with retraction of the testicle of the affected side, strangury and bloody urine.

In *uterine colic* the pain is in the pelvis, and associated with menstrual disorders, in fact, a dysmenorrhœa.

In *ovarian colic* or neuralgia, pain on pressure over the ovaries, with hysterical phenomena.

Inflammatory disorders of the abdomen differ from colic by the presence of fever and tenderness on pressure.

Prognosis. Most favorable. Death is the rarest termination possible.

Treatment. Relief of pain is the first indication, and is best accomplished by a hypodermatic injection of *morphina*, gr. ⅙-⅓, which has the additional advantage of relaxing the spasm, thereby favoring the action of *purgatives*, which should soon follow. One of the best in colic, no matter from what cause, is—

℞. Sodii bicarbonatis..... gr. viij
Hydrargyri chloridi mite..... gr. viij
Pulv. zingib..... gr. iij. M.

After the relief of the pain and free action of the bowels, the cause of the attack should be ascertained and corrected, to prevent future suffering.

For *lead colic*, *morphina*, for the pain; *magnesii sulphas*, ℥j, every hour, for the constipation, and *potassii iodidum*, gr. v–x, t. d., to eliminate the metal from the system.

CONSTIPATION.

Synonyms. Intestinal torpor; costiveness.

Definition. A functional inactivity of the intestinal canal, either due to atony of the muscular coat, causing lessened peristalsis, or to a deficiency of intestinal and biliary secretion; characterized by a change in the character, frequency and quantity of the stools.

Causes. Dyspepsia; character of the food; habits of the patient; diseases of the stomach and liver; malaria; lead poisoning; syphilis.

Symptoms. In the normal condition, the majority of persons have *one stool* each day, although it is not to be considered abnormal if more than that number occur.

The *bowels* are moved every *three* or *four days*, with great *straining* and *distress*, the *face* often *flushed*, the *cerebral vessels full.*

Or in other cases the bowels may be relieved once a day, but the *stool is small and hard*, causing great pain.

Another group of cases have *frequent stools* during the day, *small* and *non-formed*, due to retained hardened fæces acting as an irritant upon the rectum.

The change in the character of the stools is soon followed by symptoms of dyspepsia, and in many cases with great distention of the abdomen.

Prognosis. Death never results from functional constipation.

Treatment. The successful treatment depends upon the *removal of the cause* and the *co-operation of the patient.*

First, the patient must have a *regular hour* each day for *going to stool*, and must *remain a sufficient time* to permit a thorough evacuation of the bowels.

Second, the diet must be carefully regulated.

Third, purgative mineral waters or cathartic medicines are to be *used with caution*, their reckless administration often doing more harm than good.

Fourth, either of the following formulæ, aided by the enforcement of the above rules, will give good results:—

℞. Ext. nucis. vomicæ ..... gr. ¼
Ext. belladonnæ alco ..... gr. ¼
Extract aloes aqua ..... gr. ss
Pulv. rhei ..... gr. j
Ol. cajuputi ..... gtt. j. M.

In pill, at bedtime, and after a week, every second or third night.

℞. Resinæ podophyl.,
Ext. physostig.,
Ext. belladonnæ alco.,
Aloine.....āā..... gr. ¼.
In pill, every night, or second or third night.

℞. Tinct. physostig.,
Tinct. nucis vomicæ,
Tinct. belladonnæ.....āā..... gtt. x
Tinct. aloes et myrrh..... gtt. xxx. M.
At bedtime.

DIARRHŒA.

Synonyms. Enterorrhœa; alvine flux; purging.

Definition. Frequent loose alvine evacuations, without tenesmus; due to functional or organic derangement of the small intestines, produced by causes acting either locally or constitutionally.

Causes. Those acting locally, such as *indigestion, indigestible food, impure food and water, irritating matters* or *secretions* poured into the bowels, or *entozoa*, cause the flux by a direct irritation of the mucous surface.

Those due to constitutional derangement may be secondary to such diseases as *tuberculosis, pyæmia, albuminuria, typhoid fever*, or disturbances of the functions of other organs, giving rise to *vicarious fluxes.*

Forms. Acute and chronic.

Symptoms. Acute diarrhœa presents itself in several forms, the result of its cause, to wit:—

Feculent diarrhœa. A few hours after meals the patient feels *colicky pains and flatulency*, with a *desire for stool.* There is often *nausea, coated tongue*, but seldom vomiting. The *pain* is generally relieved by the purging which ensues. The *stools* have a *feculent* character, are of brown fluid, containing fæces, often offensive, the color becoming lighter after four or five evacuations. Constitutional symptoms are wanting.

This form is the result of over eating, eating too rapidly, or indigestion of different forms, or worms in the intestinal canal, and patients generally recover in a day or two.

Lienteric diarrhœa. In this form there is, with the frequency of evacuations, a *want of assimilation* of *food*, which passes through

the intestines more or less unaltered. The *stools* are frequent, *mucous* or *serous*, more or less *covered with bile*, mixed with *undigested food*. In this form the patients emaciate rapidly, owing to the deficient assimilation, the digested portions of the food being hurried on by the irritated bowel. It is usually subacute in its course.

Bilious diarrhœa. The *stools* are frequent, *green or yellow*, with *scalding sensations* at the anus and *griping pains* in the abdomen. Excessive biliary secretion is the irritating cause.

Any of the above forms may pass into chronic diarrhœa by exciting permanent diseases of the intestines. Diarrhœa due to constitutional causes will be mentioned when speaking of those conditions.

Chronic diarrhœa results from repeated attacks of the acute form, or the result of some cachexia. The *symptoms*, as far as the *stools* are concerned, are much the same as the acute disease, except they are *paler*, whence it has been termed *white flux;* in addition, *dyspeptic* symptoms, *aphthous* condition of mouth and tongue, *flatulency*, *colic*, *emaciation* and *anæmia*. The appetite is at times capricious, again impaired.

Prognosis. Favorable in *feculent* and *bilious* forms; unfavorable in *lienteric* and *chronic* forms when emaciation begins. Diarrhœa occurring as a symptom, the prognosis is controlled by the original disease.

Treatment. *Acute diarrhœa.* If caused by indigestion the *indication* is for a *laxative;* for adults, *tinct. rhei.* or *ol ricini*, or both; for children between one and two years of age—

℞. Pulv. ipecac..... gr. $\frac{1}{12}$
Pulv. rhei..... gr. ¼–⅓
Sodii bicarb..... gr. ss–ij. M.

Every four hours until the character of the stools change.

After the irritant is removed, for an adult, *opium* in some form, combined with *kino* or *tannin;* or the following modification of "Squibb's diarrhœa mixture:"—

℞. Tinct. opii deodorat..... ℥ viss
Tinct. camphoræ..... ℥ j
Tinct. capsici..... ℥ v
Chloroformi puræ..... ℥ iiss
Spts. vini gallici..... ℥ j
Alcoholis.....ad..... ℥ iv M.

Sig.—One teaspoonful, p. r. n.

For children—

℞. Bismuth.... ..... gr. iij–v
Cretæ. præp..... gr. v. M.
Every two hours.

In adults, an *opium* suppository often checks a flux that is uninfluenced by opium internally.

For the *bilious* form—

℞. Hydrargyri chlor. mitis..... gr ⅛
Sodii bicarb..... gr. ij
Pulv. opii..... gr. ¼. M.
In pill, every two or three hours, until eight pills are used, followed by large doses of *bismuth* and *pepsinum*.

In all acute forms *restricted* and *regulated diet* are imperative, *milk* being the most suitable.

Chronic diarrhœa. *Bismuth*, gr. xxx–xl, in milk, every four hours; *Hope's camphor mixture*, every four hours; *cupri sulphas*, gr. $\frac{1}{12}$, *ext. opii*, gr. $\frac{1}{12}$, every four hours; *argenti nitras*, gr. ½, *ext. opii*, gr. ½, every five hours; may all be used with more or less success; when *dry tongue* and *great flatulency*, use—

℞. Ol. terebinthini..... f℥j
Ol. amygdal. express..... f℥ss
Tinct. opii..... f℥ij
Mucil. acaciæ..... f℥v
Aq. lauro-cerasi..... f℥ss. M.
Sig.—f℥j every three or four hours.

The diet should be nutritious in character, and moderate stimulants are indicated. Activity of the skin and kidneys should be encouraged.

CATARRHAL ENTERITIS.

Synonyms. Ileo-colitis; acute diarrhœa; inflammation of the bowels.

Definition. A catarrhal inflammation of the mucous membrane of the small intestines; characterized by fever, pain, tenderness and looseness of the bowels. When the catarrh is limited to the duodenum, it is termed *duodenitis*, the symptoms being of a different character.

Pathological Anatomy. There first ensues *hyperæmia* of the mucous membrane and intestinal glands, manifested by *redness*,

swelling and *œdema ;* this is followed by *increased secretion* and an *overgrowth* and *desquamation* of the epithelium, together with a copious *generation of young cells.* As a result of the hyperæmia, rupture of the capillaries and extravasation of blood often occur.

The swollen glands show a strong tendency to ulcerate. This catarrhal process may involve the entire tube or be limited to portions of it.

Causes. Improper and indigestible food; summer temperature and exposure to cold and wet, while perspiring.

Symptoms. Begins with *languor,* followed by *chilliness* and *fever,* the temperature ranging at 102°–103°, this is followed by *pain,* colicky in character, situated about the umbilicus, localized *tenderness* and *loose evacuations. Nausea* and *vomiting* often occur. The *stools* contain but *little fecal matter,* are *yellow* or *greenish-yellow* in color, mixed with *undigested food ;* if the stools are numerous, they become whitish and watery, the so-called "*rice-water*" discharges. The appetite is impaired, and this, with the want of assimilation and great waste, soon produce extreme *weakness* and *emaciation,* which is always more marked in children.

Duration. In mild cases, four or five days; severe cases continue more or less marked, for a week or two.

Diagnosis. From *colic,* by the absence of tenderness and fever, and the presence of constipation and its paroxysmal character.

From *typhoid fever,* by the absence of prodromes, characteristic temperature record and eruption.

For points of distinction from *dysentery* or *peritonitis,* see those affections.

Prognosis. Favorable, if early and proper treatment are obtained.

Treatment. *Rest the bowels* by a restricted diet, to wit: milk and lime water, or weak mutton or chicken soups, with well boiled rice added.

Keep the patient quiet in bed, a difficult matter in the case of children.

For *adults, opium* is the remedy, in doses to control the symptoms; mild cases do well with—

℞. Ext. opii..... gr. ¼–½
Camphoræ..... gr. iij. M.
In pill, every three hours.

Or—

℞. Tinct. opii deodorat..... gtt. x
Liq. potassii citrat..... ℥ij. M.
Every four hours.

The strength and the frequency of administration of either of these formulæ must be governed by the severity of the attack.

For *children*—

℞. Tinct. opii deodorat..... gtt. j
Bismuth, subnit..... gr. v
Mist. cretæ..... f℥j. M.
Every four hours, for a child of one year.

If the case shows the least tendency to linger, the *acid* treatment should be substituted for the above, the best of which is "Hope's Camphor Mixture," the formula being—

℞. Acidi nitrosi..... f℥j
Tinct. opii..... gtt. xl
Aquæ camphoræ..... f℥viij. M.
The dose ranging from f℥j to f℥ij, according to the age.

Acidum sulphuricum dilutum may be substituted for the acidum nitrosum in the above formula.

Locally, poultices, warm fomentations, or *ung. belladonnæ* or *oleum camphorat.*, give great relief.

CROUPOUS ENTERITIS.

Synonym. Membranous enteritis.

Definition. A croupous inflammation of the mucous membrane of the small intestines; characterized by tenderness, paroxysmal pain, moderate fever, and the formation and discharge of membranous shreds or casts.

Causes. A disease of adult life. The female sex more liable than the male, and neuralgic, nervous, hysterical or hypochondriacal subjects are more subject to it than are other types.

A peculiar state of the nervous system seems necessary to its production.

Pathological Anatomy. A subacute inflammation of the small intestines, during which the mucous membrane becomes covered with a whitish or grayish-white, firmly adherent, membranous deposit, cemented together by a coagulable exudation, and prolonged by rootlets from its under surface into the intestinal follicles.

Symptoms. Begins by *feverishness*, feeling of *soreness* and *distention* of the abdomen; these are followed by *pains* of a colicky character, severe and depressing, felt around the *umbilicus*, continuing for half an hour, an hour or longer, and after a longer or shorter interval occurring again; these phenomena continue for a day or two, when *looseness of the bowels*, with distressing *pain and tenesmus* occur, the *stools* containing *mucus*, with or without *blood*, and *shreds of membrane* or *cylindrical casts of the bowel.* Great relief is then experienced, although a *feeling* of *rawness* or *soreness* persists for a day or two.

Preceding the local manifestations of the disease are attacks of hysteria, hypochondriasis, neuralgia, nervousness or excitability.

The paroxysms recur at intervals of a week or two, or after several months; as long an interval as three years between attacks is recorded.

Diagnosis. *Peritonitis* may be suspected until the characteristic stools occur.

Dysentery is excluded when the shreds and casts of membrane appear.

Prognosis. Favorable as to life, but one of the most difficult of diseases to eradicate.

Treatment. The *diet* must be such as contains but a minimum of fecal-forming matter.

For the *pain* and *suffering*, *opium* in some form is indicated, the most effective being a hypodermatic injection of *morphina.*

For *constipation* during a paroxysm, an emulsion of *oleum ricini* and *terebinthina* is of benefit. To prevent a return of the paroxysms either *liq. potassii arsenitis*, gtt. j–ij, t. d., or *hydrargyri chloridum corrosivum*, gr. $\frac{1}{60}$, t. d., with a course of *oleum morrhuæ*, seems to answer in the majority of cases. Prof. Da Costa speaks highly of *pix liquida* in some form, as an alterative to the mucous membrane.

Under no circumstances must the bowels become constipated.

CHOLERA MORBUS.

Synonyms. Sporadic cholera; English cholera; bilious cholera.

Definition. An acute catarrhal inflammation of the mucous membranes of the stomach and intestines, of *sudden* onset; characterized by violent abdominal pains, incessant vomiting and purging, cold surface, rapid, feeble pulse, spasmodic contractions of the muscles of the abdomen and extremities, and prostration.

Causes. A disease of summer and early autumn, climatic influence being an important factor. Irritants of all kinds, unripe fruits and vegetables, and fermentation of food.

Pathological Anatomy. Cases in which death has occurred within a few hours present no pathological changes.

Generally, however, the gastro-intestinal mucous membrane is congested and denuded of epithelium; the Solitary and Peyerian glands are swollen and prominent. The blood is thick, and dark in color; the kidneys are enlarged and congested; and in prolonged cases there are appearances of granular changes in the muscular system.

Symptoms. Onset sudden and violent, and unfortunately, generally *after midnight*, with chilliness, *intense nausea, vomiting and purging*, accompanied with distressing burning or tearing abdominal *pain* or *colic*. The *vomited matter* at first consists of the ordinary contents of the stomach, and the *stools* of ordinary fæces, but soon the *discharges* by vomit and stool are *liquid, whitish* or of a *green* or *yellowish* tint; if the attack is severe or protracted the discharges partake of the "*rice-water*" character. The patient is rapidly *emaciated* and *reduced* in strength, the body shrinks, the *surface cold* and covered with a *clammy sweat*, and the *pulse feeble*. *Intense thirst* is present, and when drink is given it is at once rejected.

Aggravating the distress of the patient are *severe cramps* of the muscles, and especially those of the calves, and of the flexors of the thighs, forearms, fingers and toes.

Termination. *Mild cases* often terminate favorably without treatment, the patient able to be around in a day or two, although weak.

Severe cases, the vomiting and purging cease after some hours, but the patient remains weak, with an irritable stomach and bowels for a week or more.

Grave cases, the true cholera type, recover from the prostration very gradually; reaction coming on slowly and usually passes into a typhoid condition of some weeks' duration.

Diagnosis. *Asiatic cholera* and cholera morbus are easily confounded during an epidemic of the former, and there are no positive points of discrimination, unless the *comma baccilli* of Koch are proven to be always in the true cholera stools.

Irritant poisons, such as tartar emetic, elaterium, or other sub-

stances, cause vomiting and purging, similar to cholera morbus, and are only discriminated from it by the history.

Prognosis. In the majority of cases favorable. The mortality is about five per cent.

Treatment. *At once*, regardless of the cause, a hypodermatic injection of *morphinæ sulph.*, gr. ⅛–⅓, and *atropinæ sulph.*, gr. $\frac{1}{150}$, to be repeated in half an hour if no improvement; for patients who object to the hypodermatic mode, *opium* in some form by the mouth or rectum, giving the preference to the liquid preparations.

Camphora and *opium* combined often act well, or the diarrhœa mixture mentioned on page 68, and if much depression, small doses of *brandy* or *dry champagne*.

The *intense thirst* must not be gratified by the use of liquids, but small *pellets of ice* by the stomach are grateful.

If the vomiting and purging continue, make use of—

℞. Bismuth subnit..... gr. xx
Acid carbol..... gr. ss
Glycerini..... gtt. xx
Aquæ..... ad..... ʒ iv. M.

Every hour or two.

Dr. Hartshorne strongly recommends—

℞. Spts. ammon. aromat..... ʒ j
Magnes. optim..... ʒ j
Aq. menth. pip..... ʒ iv. M.

Sig.—ʒ j every twenty minutes.

If the case is seen early, and if the diarrhœa is copious, he adds *tinct. opii camph.*, ʒ iv, to the mixture.

The closer the case approaches the true cholera type, the more severe are the *muscular cramps*, and treatment is indicated. Prof. DaCosta suggests—

℞. Chloral..... ʒ iv
Cosmoline..... ʒ j. M.

To be rubbed over the affected muscles.

Dr. Bartholow suggests—

℞. Chloral..... ʒ iij
Morphinæ sulph..... gr. iv
Aquæ..... ʒ j. M.

Sig.—*Twenty minims*, hypodermatically.

Locally, *sinapis* in the form of poultices or the dry powder, should be applied from the onset.

The after treatment depends upon the symptoms; generally an *acid mixture* and a *regulated diet*, with tonic doses of *quinina*, are indicated.

ENTERO-COLITIS.

Synonym. Inflammatory diarrhœa.

Definition. A catarrhal inflammation of the lower portion of the small—ilium—and the upper portion of the large intestines, with a great tendency to ulceration of the intestinal glands if the catarrh becomes chronic; characterized by moderate fever, nausea, vomiting, diarrhœa, swollen abdomen and emaciation.

Causes. Improper and indigestible food; summer temperature; impure air; uncleanliness; exposure to cold and damp air.

Forms. Acute and chronic.

Pathological Anatomy. *Acute variety;* hyperæmia, swelling, œdema and softening of the mucous membrane of the lower portion of the small and the upper portion of the large intestines, with hyperplasia of the intestinal follicles, their excretory orifices enlarged and tumid, readily distinguished as grayish or blackish points in the middle of the glands; the patches of Peyer are also enlarged, tumefied and project above the level of the surrounding mucous membrane, the orifices of the follicles appearing as dark points; these patches often have an ulcerated appearance, but upon close examination such is found not to be the case.

Chronic variety; the thickening and infiltration has extended to the submucous and muscular coats, followed by induration of the tissues, so that the walls of the intestines are often abnormally rigid. Ulceration occurs, which extends through the entire thickness of the membrane. "These ulcers, when isolated, are from one to one and a half lines in diameter, oval or circular in shape, and either have sharp-cut edges, as though the piece of mucous membrane had been cut out with a punch, or the mucous membrane bounding them is undermined." The small ulcers often coalesce, so that large, irregular ulcerated patches are formed, having for their base the submucous or muscular coats, and have a grayish-white color.

The mesenteric glands are enlarged, but seldom, if ever, undergo ulceration.

Symptoms. *Acute form;* may develop slowly, with restlessness and fretfulness, or suddenly with *feverishness*, *loss of appetite*, *thirst*, *nausea*, moderate *vomiting*, abdominal *pain;* or *diarrhœa* may be the

first indication of illness on the part of the child. Regardless of the character of the onset, the *stools* soon present the characteristic appearance; they are *semi-fluid*, heterogeneous, *greenish*, *acid*, mixed with *yellowish fragments* of ordinary fæces, and *undigested casein*, termed the "chopped spinach" stools. The *abdomen* is *enlarged* and *tender*.

Emaciation is marked in proportion to the severity of the symptoms, in marked cases the child is reduced to a condition of the greatest debility within a very few days.

Chronic form; usually follows the acute form, the character of the symptoms being less severe, but decidedly persistent, the strength fails, the temper is very irritable, the complexion grows dark, sallow and unhealthy, the skin dry and harsh, and in consequence of the marked emaciation, either hangs in folds around the shrunken limbs, or is drawn tightly over the joints; the abdomen is enlarged and tender, the stools numbering from six to a dozen during the day and night, consisting of the products of an imperfect digestion mixed with mucus, serum, pus, and oftentimes blood, having a semi-fluid consistency, and an extremely offensive odor.

Duration. *Acute*, from ten days to about two weeks, subsiding gradually; *chronic*, from one to two or three months, or even longer.

Diagnosis. The acute form can hardly be mistaken for any other condition, if the characteristic stools and other abdominal symptoms are present. The chronic form has been frequently mistaken for diarrhœa of tuberculosis, an error that can hardly occur if a physical examination of the chest has been made.

Prognosis. Always a very serious malady, and proves fatal if it attacks the weak during midsummer, or when surrounded by unfavorable hygienic conditions; in vigorous children, who have passed through their first dentition, the prognosis is quite favorable.

Treatment. For the *acute form*, restricting the amount of food for the first few days is of advantage. Fresh, pure air, cleanliness and rest are also of importance.

Any one of the following formulæ may be used with advantage—

℞. Calcii carbon. precip..... ℥j
Tinct. opii camph..... f℥ss
Tinct. lavendulæ comp..... f℥ij
Syr. gallæ aromat..... f℥iss
Syr. acaciæ..... f℥j. M.

Sig.—Teaspoonful, repeated every hour or two.

Or— ℞. Tinct. opii comp..... f℥iij
Tinct. catechu comp..... f℥iv
Misturæ cretæ..... f℥ix. M.
SIG.—One or two teaspoonfuls, every hour or two.

Or— ℞. Bismuth subnit..... ℥iv
Pulv. acaciæ,
Sacc. alb.....āā..... q. s.
Syr. gallæ aromat..... f℥j
Spts. vini gallici..... f℥ij
Aquæ.....ad..... f℥iij. M.
SIG.—One or two teaspoonfuls, every two hours.

Or— ℞. Pulv. ipecac..... gr. ¼
Bismuth subnit..... gr. v
Cretæ præp..... gr. iij M.
SIG.—After each stool.

Locally, warmth to the abdomen, with mustard, turpentine stupes or the *spice poultice*, made as follows: *cloves, allspice, cinnamon and anise seeds*, each half and ounce, pounded (not powdered) in a mortar, and placed between two pieces of coarse flannel about six inches square and quilted in; soak this for a few minutes in hot brandy or hot whisky and water, equal parts, and apply to the abdomen, heating again as its becomes cool.

For *chronic form;* carefully regulated diet, rest and fresh air, and one of the following formulæ:—

℞. Acidi carbolici..... gr. ¼–½
Tincturæ iodi..... gtt. j–ij
Aquæ menthæ..... ℥j. M.
SIG.—Every three or four hours.

Or—

℞. Tinct. calumbæ..... f℥iij
Liq. ferri nitratis..... ♏xxvij
Syrupi zingib..... f℥iij. M.
SIG.—One or two teaspoonfuls, according to age, every three or four hours.

CHOLERA INFANTUM.

Synonyms. Choleriform diarrhœa; summer complaint.

Definition. An acute catarrhal inflammation of the mucous membrane of the stomach and intestines, together with an irritation of the sympathetic nervous system, occurring in children during their

first dentition; characterized by severe colicky pains, vomiting, purging, febrile reaction and prostration.

Cause. Age; bad hygiene, or as it is now entitled, "civic malaria;" continuous high temperature; improper food; dentition; constitution, as the feeble, delicate, nervous or irritable.

Pathological Anatomy. Resembles closely, if not identical with the phenomena of catarrhal gastritis and enteritis, together with a powerful irritation of the fibres of the sympathetic system.

Symptoms. The onset is *sudden* in a child previously well, or in a child suffering from a bowel affection.

Begins with *vomiting*, *purging*, abdominal *pain*, *fever*, *rapid pulse* and *intense thirst*.

The *vomited matter* is partly digested food, sero-mucous, and finally bilious, and is accompanied with distressing *retching*. The *thirst* is a marked phenomena of the disease, and ice and water will be taken incessantly, although rejected only a few moments after.

The *stools* are first partly fecal, but soon watery or serous, soaking the clothing, leaving a faint greenish or yellowish stain; their odor is musty, at times fetid; their number is from ten to twenty in the day.

Pains precede the vomiting and purging, colicky in character.

The *fever* begins at once, the temperature varying from 101° to 105°, with morning remissions. The *pulse* is rapid and feeble, ranging from 130 to 160.

These symptoms continue but a few hours, before *rapid wasting* ensues, the body shrinks, the eyes are sunken and partly closed, the mouth partly open, the lips dry, cracked and bleeding. The child, at first *irritable* and *restless*, passes into a semi-comatose condition, the pulse becoming more and more feeble, the surface has a clammy coldness, the contracted pupils not responding to light, and the stupor deepens, death soon following, or the symptoms slowly ameliorate, convalescence being slow and tedious.

Diagnosis. The *entero-colitis* or inflammatory diarrhœa of childhood is constantly being mistaken for cholera infantum. The symptoms of the former are: gradual onset, with *fretfulness*, *loss of appetite*, *feverishness*, *nausea*, and moderate *vomiting*, soon followed by *diarrhœa*, the stools being semi-fluid, greenish, mixed with yellowish particles of fæces and undigested casein, with a sour odor, the

"chopped spinach" stools, the *abdomen* distended and *tender*, moderate *fever* and *thirst*, and having a *duration* of about two weeks.

Prognosis. Difficult to predict the result, and so care must be used in giving a prognosis. The duration of the choleraic symptoms is short, under five days, but relapses are common, and the sequelæ are protracted.

Treatment. The first indication is to arrest the vomiting and purging, for which, use—

℞. Bismuth subnit..... gr. v–x
Mucil. acaciæ..... ℥ss
Acidi carbolici..... gr. $\frac{1}{12}$–$\frac{1}{6}$
Tinct. opii deodorat..... gtt. j
Mist. cretæ..... ℥iss. M.

Every two hours for a child between one and two years.

Or,

℞. Hydrargyri chlor. mit..... gr. $\frac{1}{20}$
Bismuth. subnit..... gr. ij–v. M.

SIG.—A powder every half hour.

If these fail, or the stomach will not retain them, *tinct. opii* may be given by the rectum, with *zinci sulph.* and *amylum.*

Cases that have resisted other remedies have rapidly improved under the following:—

℞. Tinct. verat. alb..... f℥ij
Morphinæ acetat..... gr. ij
Spts. vini gallici..... f℥ij. M.

Et adde ℥j to

Aquæ calcis,
Aquæ menthæ .....āā..... f℥j M.

SIG.—One teaspoonful, repeated every hour, if needed.

The diet must be restricted in amount: for the first day or two gtt. v–xxx *brandy* in *barley water* at frequent intervals will be all that is required.

For *fever*, *quinina* or *aconitum* are indicated.

For *depression* regulated nursing or feeding, every two hours, and water or ice to quench the intense thirst, and *cognac brandy*, gtt. x-xxx, every hour or two, in water.

Locally; over epigastrium, mustard or a spice poultice, or turpentine stupes.

If the *nervous symptoms* become aggravated, small dose of *potassii bromidum*, or *valerian*, which "reduces the reflex excitability, motility and sensibility," is indicated.

ACUTE DYSENTERY.

Synonyms. Colitis; colonitis; ulcerative colitis; bloody flux.

Definition. An acute inflammation of the mucous membrane of the large intestines, either catarrhal or croupous in character; characterized by fever, tormina, tenesmus and frequent, small, mucous and bloody stools.

It occurs either in the *sporadic*, *endemic* or *epidemic* form.

Causes. *Sporadic* and *endemic dysentery* is caused most commonly by atmospheric changes, to wit, hot days and cool nights; also from malarial attacks, and rarely, errors in diet.

Epidemic dysentery prevails in armies, jails, and tenement houses, propagated by decomposition of dysenteric stools, and the unfavorable hygienic surroundings.

It is not contagious.

Pathological Anatomy. *Sporadic dysentery* is catarrhal in character; congestion, swelling and œdema of the mucous membrane and sub-mucous tissue, with an over-production of mucus; the follicles are enlarged, from retention of their contents, the result of the swelling; the congested vessels often rupture; the mucous membrane softens in patches, and is detached, forming ulcers. Recovery follows, if the destruction of tissue is small, smooth cicatrices, minus gland structure, marking the site.

Epidemic dysentery is croupous in character; begins with intense congestion, swelling, and œdema of the mucous and sub-mucous tissue, with extravasations of blood and the whole mucous membrane covered with a firm fibrinous exudation; the mucous membrane softens and sloughs, leaving large ulcers and gangrenous spots. If recovery occur, large cicatrices form, which narrow the calibre of the intestinal tube.

The mesenteric glands enlarge, soften, and abscesses form in them; the liver becomes the seat of small abscesses, from embolic obstruction of the radicles of the portal vein; the heart muscles are flabby and more or less fatty.

Symptoms. *Catarrhal form* begins gradually, with *diarrhœa*, *loss of appetite*, *nausea*, and *very slight fever*, which continues for two or three days, when the *true dysenteric* symptoms set in, to wit, *pain* on pressure along the transverse and descending colon, *tormina* or *colicky pains* about the umbilicus, *burning pain* in the rectum, with *the sensation* of the presence of a foreign body and a desire to expel it,

or *tenesmus*, which is almost constant; the *stools* for the first day or two contain more or less fecal matter, but soon they consist of a *grayish, tough, transparent mucus*, containing more or less *blood* and *pus;* during the *tormina, nausea* and *vomiting* may occur; the urine is scanty and high colored; the number of stools ranges from five to twenty or more in the twenty-four hours.

The *duration* is about *one week*, the patient being much *emaciated* and *enfeebled*.

The *croupous* or *epidemic form* sets in suddenly, the *stools* being more frequent, containing more *blood* and *pus*, with *patches of membrane*, even *casts of the bowel*, together with more or less *gangrenous mucous* membrane; *nausea, vomiting*, and great *prostration, cold skin, feeble pulse* and *emaciation*, with *anxious expression*, the *odor* surrounding the patient being *fetid*.

The *duration* of the grave symptoms is three or four days, when collapse and death occur, or slow convalescence begins, continuing for weeks.

Complications. *Peritonitis; hepatic abscesses; phlebitis* of the intestinal veins; *intestinal perforation.*

Diagnosis. *Enteritis* lacks the tenesmus and characteristic stools. *Peritonitis*, when idiopathic, shows higher temperature, greater tenderness and constipation.

Prognosis. *Catarrhal form* favorable. *Croupous* form, the prognosis is always grave, for if recovery does occur the bowel may be crippled, from loss of structure, or from narrowing of its calibre, the result of cicatrices.

Treatment. Emaciation being rapid, the diet must be attended to from the onset, and be of the most nourishing character, to which stimulus should be added if much prostration occur.

The most common treatment is *opium*, combined with one or more *astringents*, to wit:—

℞. Ext. opii..... gr. ss
Plumbi acetat..... gr. ij. M.
Every two hours; or—

℞. Pulv. opii..... gr. ss
Plumbi acetat..... gr. ij
Pulv. ipecac..... gr. j. M.
Every two hours; or—

℞. Pulv. ipecac et opii..... gr. x
Bismuth subnit..... gr. xx. M.
In milk, every two hours.

If the case is seen early the very best prescription possible is—

℞. Magnesii sulph..... ℥j
Acid. sulph. dil..... ♏v
Tinct. opii deodorat..... ♏x
Aquæ menth..... ℥ij. M.

Every two or three hours, until fæces appear in the stools, when small doses of *opium* and *quinina* may be used.

Ipecacuanha in gr. xx–xl, is largely used in the first stages of dysentery, until the characteristic ipecac stools appear; the first doses being often rapidly rejected by the stomach, the treatment is difficult to pursue outside of hospital practice; but of its efficacy in many cases there can be no doubt.

Dr. Loomis speaks strongly of *Ipecacuanha*, gr. ¼ every half-hour, with sufficient opium to secure quietness.

Ringer recommends *hydrargyri chloridum corrosivum*, gr. $\frac{1}{100}$, every hour or two, which "rarely fails to free the stools from blood and slime, although in some cases a diarrhœa of a different character may continue for a short time longer."

In children the following combination is efficacious:—

℞. Pulv. ipecacuanha..... gr. ¼
Bismuth subnit..... gr. v
Cretæ præp..... gr. iij. M.
Sig.—Every two hours.

The patient should be confined to bed in even the mildest attacks, and the stools removed at once and *disinfected*.

Washing out the rectum with either tepid, hot, cold or iced water, as suggested by Prof. DaCosta, adds greatly to the patient's comfort and to the decrease of the inflammatory process.

TYPHLITIS.

Synonyms. Inflammation of the cæcum; catarrh of the cæcum.

Definition. A catarrhal inflammation of the mucous membrane of the cæcum and ascending colon; characterized by pain, tenderness, constipation, and in certain cases a characteristic vomiting.

Causes. In a majority of cases *mechanical*, from the lodgment of seeds or hardened fæces.

Pathological Anatomy. Similar to the catarrhal inflammation of dysentery.

Symptoms. *Pain* and *tenderness* in the right iliac fossa and along the ascending colon, with some *prominence* of this region; the *bowels* are usually *constipated*, or small liquid stools may occur from time to time, due to the accumulation of hardened fæces in the sacculated periphery of the cæcum, leaving a central canal through which the liquid contents of the upper bowel can pass.

In *severe cases*, "the local *pain*, *tenderness* and *swelling* are greater, there are *impaction* of *fæces* and *no movements*. There are decided *fever*, *restlessness*, and also *nausea* and *vomiting*. The *vomited matters*, at first the contents of the stomach, then the duodenum, with bilious matter, and ultimately, if the impaction persists, of material having the odor of fæces. With these symptoms occur *great depression of the vital powers*. *Peritonitis* is finally developed by contiguity of tissue or by rupture of the bowel."

Duration. The *mild form* lasts about one week. The *severe form* may terminate in acute peritonitis, continuing about two weeks.

Diagnosis. The *mild form* is distinguished from other intestinal affections, by the localized pain, tenderness and prominence, and the constipation.

The *severe form* can only be distinguished from the other forms of *intestinal obstruction* by the history of the case and attack, and the results of treatment.

Prognosis. *Mild form* favorable. *Severe form* grave, although not necessarily fatal.

Treatment. The patient should be kept in bed, and placed on a strictly milk diet.

In *mild cases*, act upon the bowels, with either *oleum ricini* or *magnesii sulphas* in small doses, followed by an *opium* influence, to be maintained until convalescence is well pronounced.

In *severe cases*, begin an *opium* influence at once, by hypodermatic injections of *morphina* guarded with *atropina*, continued until all symptoms of inflammation have subsided, when attempts to remove the accumulated fæces may be made by *irrigation of the bowel* with warm soapsuds, and the cautious administration of *magnesii sulphas* in drachm doses, every two hours.

Locally. Leeches over the cæcum followed by hot fomentations or ice bags, or cold compresses.

PERITYPHLITIS.

Synonym. Perityphlitic abscess.

Definition. An acute inflammation of the connective tissue around the cæcum, tending to the formation of an abscess; characterized by pain, swelling, and febrile reaction.

Causes. Injuries to the abdomen over the cæcum; and also extension of the inflammation from the cæcum by perforation. Often occurs with typhlitis.

Symptoms. Begins with a *feeling of weight, soreness* and *paroxysms* of *acute pain* extending into the hip, thigh and abdomen, with the development of a *hard swelling* in the *right iliac region*. Its special tendency is toward *suppuration*, which is announced by *irregular chills, feverishness*, and *sweats*, and a feeling of *tension* and *throbbing*. Its development is slow, and if associated with *typhlitis* the symptoms of that affection are added.

Diagnosis. Differs from *typhlitis* by the absence of the colicky pains, dyspeptic symptoms, costive bowels and tympanites preceding the development of a tumor; in perityphlitis the tumor is present with the development of the symptoms.

Psoas abscess is not associated with intestinal symptoms, and the discharge is free from a fecal odor. *Renal* and *ovarian* tumors should not be sources of error.

Treatment. If not associated with typhlitis, the treatment is to allay the inflammation in the first stage, by either *ice, locally*, or freely *painting* with *tinct. iodi;* if suppuration is evident, hasten by *poultices*, and follow by evacuation of the pus with the *aspirator* or a *free opening*, conjoined with the use of *opium* and *quinina*.

PROCTITIS.

Synonyms. Catarrh of the rectum; dysentery; rectitis.

Definition. A catarrhal inflammation of the mucous membrane of the rectum and anus; characterized by pain, tenesmus and frequent stools of hardened fæces, or of mucus, pus and blood.

Causes. Chief cause constipation; also sitting on damp ground or stone steps; habitual use of enemata or of purgatives; diseases of the liver.

Pathological Anatomy. Similar to those occurring in catarrhal dysentery.

Symptoms. Uneasy sensations and *burning in the rectum*, with a constant desire for stool, or *tenesmus*, often so severe as to cause a *prolapse of the mucous membrane*. *The stools* may be either *hardened fæces* or *scybala* from the distended colon, which cause *intense pain* when they reach the rectum; or *the stools* may be of *mucus*, *muco-pus*, or *bloody or blood-streaked*. Generally there are present *nausea*, especially during the tenesmus, *headache*, *feverishness* and *malaise*. In severe cases there is *strangury*, and with the tenesmus, *straining with urination*.

If the case be protracted and severe, inflammation of the connective tissue around the rectum occurs, causing *periproctitis*, which usually terminates in various kinds of fistulæ.

Complications. Periproctitis; peritonitis; hepatic abscesses.

Diagnosis. In *males*, the disease cannot be confounded with any other affection, save, perhaps, hemorrhoids. In *females*, displacements of the uterus may somewhat simulate the symptoms of proctitis.

Prognosis. Uncomplicated cases favorable. Either of the complications add greatly to the gravity of the affection.

Treatment. In cases due to constipation the chief indication is to empty the bowels, for which the *magnesia mixture* mentioned for dysentery is the most suitable remedy; after which *emollient enemata*, with *opium*, are indicated. *Irrigation* of the *bowel* with warm water once or twice daily assists in the liquefaction of the hardened fæces.

Cases other than those due to constipation, *emollient enemata* and *opium*, one of the best being—

℞. Ol. olivæ..... ℥ij
Tinct. opii deodorat..... ♏xv. M.
Every three or four hours.

If symptoms of *periproctitis* occur, use *ice* to the parts, and if suppuration ensue, *evacuation* by a free opening and *quinina*.

INTESTINAL OBSTRUCTION.

Synonyms. Intestinal occlusion; strangulated hernia; invagination; intestinal stricture.

Definition. A sudden or gradual closure of the intestinal canal; characterized by pain, nausea, vomiting, constipation, and finally collapse.

Causes. The numerous causes are arranged as follows :—

1. *Accumulations within the bowel*, of hardened fæces, or foreign bodies.

2. *Strictures*, the result of cancer, ulceration, or cicatrices.

3. *Pressure against the bowel*, from peritoneal adhesions, tumors, and abnormal growths.

4. *Strangulations*, due to the numerous forms of hernia.

5. *Invagination* or intussusception, the most common.

6. *Twisting*, volvulus or rotation of the bowel.

Pathological Anatomy. *Invagination* is the only form calling for special description. It is usually caused by the lower portion of the ileum slipping down into the cæcum, as the finger of a glove might be invaginated, causing thus an actual mechanical obstruction ; this is produced by a spasm of the ileum, whereby its calibre is greatly diminished, thus permitting its descent into the lower bowel. Resulting from this occlusion or compression, are congestion, inflammation, with secondary constitutional reaction and death, or more rarely the invaginated bowel sloughs off, and is voided by stool, union taking place at its site and recovery following.

Symptoms. The onset of the symptoms may be either *sudden* or *gradual*, and are as follows :—

Constipation, with more or less severe *colicky pains*, not relieved by either purgatives or injections ; *feeling of weight* and *soreness*, with *distention* of the abdomen and *nausea* and *vomiting ;* the symptoms all grow more pronounced, the *pain* becoming *violent*, *tenderness* in limited areas, the *vomiting* becoming *stercoraceous*, the abdomen hard and tense, the *eyes sunken*, the *pulse quick* and *feeble*, the *skin cold* and covered with a clammy sweat. The above continue more or less pronounced for a week to ten days, when collapse and death occur, or more rarely gradual return to health.

Cases occur rarely in which small, fecal, muco-purulent stools containing more or less blood exist, instead of constipation.

Diagnosis. One of the most difficult, and can only be solved by a careful study of the case along with the different causes producing the affection. The site of the occlusion can rarely be determined positively.

Intestinal obstruction may be mistaken for *intestinal colic*, *hernia*, *enteritis*, *peritonitis*, *hepatic* or *renal colic*.

Prognosis. Always grave, but guided by the cause. *Impacted fæces* favorable. *Invagination* less favorable, but recoveries occur ;

the longer the symptoms continue, the more favorable the outlook. *Strangulations* unfavorable, but many recoveries recorded. *Strictures*, due to cancer, cicatrized ulcers and the like, are the most unfavorable.

Treatment. Stop all forms of purgatives as soon as the diagnosis of obstruction is determined.

Opium is indicated in all forms, and is best administered in the form of *morphina*, combined with small doses of *atropina*, hypodermatically.

Several recoveries are reported from *washing out the stomach* repeatedly, Küssmaul resorting to it as many as five times within twelve hours in one case, with recovery.

If *impacted fæces* is the cause, *irrigation* by tepid soapsuds seems beneficial.

If *invagination*, raising the buttocks and lowering the chest, and repeated *injections* of *warmed oil*, are recommended.

Distention of the bowel by *pumping air* through long rectal tubes, or disengaging *carbonic acid gas* in the bowel, by first injecting a solution of *sodii bicarbonas*, and follow this with a solution of *acidum tartaricum*, about one drachm of each, pressure being made against the anus, to prevent escape; but the danger of rupture of the bowel must not be overlooked.

Flatulent distention can be removed by the long *aspirator* needle.

Laparotomy is no doubt the operation of the future, when our means of diagnosticating the location of the trouble is more perfect.

The *nutrition* of the patient is best attained by injections of either peptonized foods or defibrinated blood, or both.

INTESTINAL PARASITES.

TAPE WORMS.

Varieties. *Tænia solium; Tænia saginata; Bothriocephalus latus.*

Causes. The *Tænia solium*, the "armed tapeworm," is the most common in this country. It is derived from the embryos contained in *pork*, known as the *cysticercus cellulosus*.

The *Tænia saginata*, the "unarmed tapeworm," a not uncommon variety, is derived from the embryos contained in *beef*, known as *cysticercus bovis*.

The *Bothriocephalus latus*, also an "unarmed tapeworm," the largest parasite infesting man, is supposed to be derived from an embryo found in *fish*.

The embryo or ova is introduced into the intestinal canal with the food and drink. The parasite reaches its final growth after its entrance into the intestines.

Those handling fresh meats or eating uncooked animal food are most liable to be affected.

Uncleanliness is also an important factor.

Description. The *tænia solium* is from six to thirty feet in length, has a globular head, or scolex, a slender neck connecting its numerous *flat segments* or *joints*. The head, or scolex, measures about $\frac{1}{10}$ of an inch, has a double circle of hooklets,—whence the term "armed tapeworm,"—and is provided with from two to four suckers. The segments or joints (*strobila*) are flat, and vary from one-eighth to one-half an inch in length, and each contain both male and female sexual organs, the uterus being a long, numerously branched tube, in which the ova develop; the ova measure about $\frac{1}{1000}$ of an inch in diameter. An ordinary tapeworm contains some five million ova.

The parasite is firmly imbedded in the mucous membrane of the upper third of the small intestines by its hooklets and suckers.

The lower or terminal *segments* represent the adult and complete animal, and are termed the *proglottides*, which separate from the parasite and are discharged either alone or with the fæces.

The *tænia saginata* is from ten to forty feet in length, has a rounded or oval-shaped head, measures about $\frac{1}{10}$ of an inch and has four strong and prominent suckers, but *no* hooklets,—whence the term "unarmed tapeworm;" the neck is short and thick and the *segments* are larger, stronger and thicker than those of the T. solium.

The *Bothriocephalus latus* is the largest of the three Cestoda, the length ranging from fifteen to sixty feet, the head oval, measuring about $\frac{1}{10}$ of an inch, a short neck, the segments or joints being nearly three times as broad as they are long. Its color is a dull, bluish-gray. Zoölogically considered, this variety is not a true tapeworm.

Symptoms. Not unfrequently a *tænia* produces no symptoms whatever.

Usually, however, there are *colicky pains* throughout the abdomen, *inordinate appetite*, *disorders* of *digestion*, *emaciation*, *constipation*, attacks of *cardiac palpitation*, *faintness*, disorders of the special senses and *pruritus* of the anus and nose. Any or all of these symptoms may be present.

A large meal will often remove the majority of the symptoms present.

In a large number of cases the discovery of the *segments* is the first intimation of the presence of the parasite.

Treatment. A number of remedies—termed tæniafuges—are used more or less successfully for the expulsion of the tapeworm, to wit: *extractum granati rad. cort. fluidum*, ʒss–ij, or a *decoctum granati rad. cort.* (℥ij bark of root, aquæ Oj), wineglassful every hour until all is taken, as suggested by Prof. Bartholow; or *oleoresina aspidii*, ʒss doses repeated, or *oleum pepo express*, ʒj–iv, followed by *oleum ricini*.

A much pleasanter remedy is *pelleterine*, the active constituent of *granatum*, used in the form of the *tannate*, gr. x–xx, or *Tanret's solution of pelleterine*.

Cases which resist these means are often cured by the following:—

℞. Chloroformi,
Ext. aspidii fld. .....āā..... ..... fʒj
Emul. olei ricini.....(B. Ph.)..... ℥iij. M.

Sig.—To be taken in the early morning; no food until after thorough action of the bowels.

An important precaution in the management is close attention to the "preparatory treatment" rendered essential to remove the mucus in which the *head* (scolex) is imbedded. It consists in the administration of a good purgative for one or two days, and a light diet, such as milk and broths, preceding the use of the tæniafuge.

ROUND WORMS.

Varieties. *Ascaris lumbricoides; oxyuris vermicularis.*

Causes. The *ascaris lumbricoides* is one of the most common of the parasites affecting the human family, and develops in the intestines, either after the entrance of the *ova* of the same, or from the so-called "intermediate parasites." Their entrance is effected by means of the food and drink.

The *oxyuris vermicularis* develops in the large intestines, from either its peculiar ova, or the so-called "intermediate parasite," these finding their way into the bowel with the food and drink, or by direct contact.

Description. The *ascaris lumbricoides*, or the *round worm*, is of a brown color, a cylindrical *body*, from ten to twenty inches in length and from an eighth to a fourth of an inch in circumference; the *head* terminates in three semilunar lips, each having about two hundred teeth. The *ova* are oval-shaped, are produced in immense numbers, some sixty million in a mature female, have wonderful vitality, resisting extreme heat or cold.

The *round worm* inhabits principally the *small intestines*, although it often migrates to other parts. They are found in numbers from one to several hundred.

The *oxyuris vermicularis*, *thread* or *seat worm*, resembles an ordinary piece of white thread, measuring from a sixth to a half inch in length, the *head* terminating in a mouth with three lips, the *tail* terminating as a sharp point. The *ova* are oval, produced in large numbers, each female containing about ten thousand, are surrounded by a stout envelope, which increases their vitality.

The *seat worm*, as its name indicates, inhabits the *large* intestines, especially the rectum, although they frequently migrate to the sexual organs. They vary in number, sometimes the parts frequented being entirely covered.

Symptoms. The *ascaris lumbricoides*, or *round worm*, may be present in great numbers and yet produce no characteristic symptoms other than *gastric* and *intestinal irritation*, such as picking the nose, foul breath, colicky pains, nausea and vomiting, diarrhœa and disturbed sleep, such as tossing from side to side of bed and grinding the teeth. Any or all of these symptoms may be present or absent, the only positive proof being the passage of the parasite.

The *oxyuris vermicularis*, or *seat worm*, produce *intense itching* about the anus, with a desire for stool, the passages often containing much mucus, the result of the irritation produced by their presence. Should they migrate to the sexual organs, intense itching of these parts results, which, unless speedily corrected, leads in children to masturbation.

Treatment. The *ascaris lumbricoides* are readily removed by *the following* "worm powder":—

℞. Santonini ..... gr. ¼–j–ij
Hydrargyri chlor. mite..... gr. ⅓–ij. M.
Ft. chart.

SIG.—At bedtime, followed by a dose of *oleum ricini* before breakfast.

For the *oxyuris vermicularis* the above *santoninum* powder, with the use of *enemata* of *quassia, alumen, sodii chloridum*, or ℞., *acidi carbolici*, gr. v–x, aquæ, Oj, according to the age, the injection not to be retained. Washing the anus and external genitals with a solution of *acidum carbolicum* should also be used.

DISEASES OF THE PERITONEUM.

PERITONITIS.

Synonym. Inflammation of the peritoneum.

Definition. A fibrinous inflammation of the peritoneum, either *acute* or *chronic* in character, characterized by fever, intense pain, tenderness, tympanites, vomiting and prostration. It may be limited to a part—*local*, or it may involve the whole membrane—*general*, peritonitis.

Causes. *Acute variety:* Intense cold; protracted irritation by blisters; blows upon the abdomen; inflammation or perforation of the stomach, intestines, gall or urinary bladder; inflammation of the pelvic viscera; septicæmia or pyæmia; erysipelas.

Chronic variety: Tuberculosis; albuminuria; scrofula; cancer; cirrhosis of the liver.

Pathological Anatomy. *Acute form;* hyperæmia of the serous membrane, the capillaries distended and occasional extravasations of blood from their rupture; the normal secretion is arrested, and the shiny membrane becomes dull and opaque, from an exudation of pure fibrin, which is adhesive, glueing the parts together; if the inflammatory action is now arrested, it is termed *adhesive* peritonitis; if, however, the action progress, an effusion of serous fluid is poured out into the peritoneal cavity, the amount varying from a few ounces to several gallons; this is termed *exudative* peritonitis. If recovery result, the fluid is absorbed, with much of the solid exudation, the unabsorbed portions forming adhesions between the membrane and the different abdominal organs, often causing great deformity and irregularity in their relations.

The chronic form follows the acute, or is associated with tuberculosis, scrofula, Bright's disease, or cirrhosis of the liver.

The membrane is irregularly thickened and opaque, with strong adhesions to one or more coils of the intestine, the liver or spleen; the quantity of fluid present is small, purulent or sero-purulent in character, and encysted by the agglutinated membrane.

Symptoms. *Acute form;* when idiopathic, the onset is sudden, with a *chill, fever*, 102–3°, *pulse* 100–140, wiry and tense, *severe pain*, cutting or boring in character, and *tenderness*, becoming so great that the slightest touch aggravates it, the *decubitus* being on the back, with flexed thighs; the *abdomen* is *distended* and *rigid*, from *constipation*, *effusion* and *meteorism;* the diaphragm is pushed up as far as the third or fourth rib in severe cases, causing compression of the lungs, and displacement of the heart, liver and spleen. There is *impaired appetite*, and *nausea* and *vomiting* are almost constant, as is *hiccough*.

Secondary form, from extension, begins with local and gradually increasing pain, the temperature increases, tense pulse and vomiting. If *from perforation*, it is announced by severe pain and all the symptoms of shock.

These symptoms continue from six to eight days, when they begin to ameliorate and a tedious convalescence ensues, or pain and tenderness grow more marked, strength fails, surface cold, pulse rapid, and collapse, with hippocratic face, to wit: anxious expression, pinched features, sunken eyes and drawn upper lip.

Chronic form; irregular *chills, fever* and *sweats; distended abdomen, constipation*, alternating with *diarrhœa;* diffused *tenderness*, with *points of intenseness* and *hardness; colicky pains* during digestion, *rapid emaciation* and failure of strength. Usually, the lower portions of the abdomen give a dull note on percussion, from the presence of fluid, or scattered points of dullness, showing the presence of encysted fluid.

Diagnosis. *Acute gastritis* differs from peritonitis in having a history of corrosive poisoning, severe pain, limited to the stomach, with early and severe vomiting; while the latter has fever, diffused abdominal pain and tenderness, with decided distention.

Acute enteritis has localized pain and tenderness with marked diarrhœa; constipation being the rule in peritonitis.

Rheumatism of the abdominal muscles occurs with a rheumatic history, is subacute, lacks the great abdominal distention of peri-

tonitis, and while tenderness exists, it is not aggravated by deeper pressure.

Biliary colic, or the passage of a *gall-stone*, has, as a prominent symptom, excruciating pain, localized over the common bile duct, which is of a paroxysmal character and followed by jaundice. In *renal colic* the acute pain follows the course of the ureters, with retracted testicle and altered urinary secretion.

Prognosis. *Idiopathic cases* favorable, and especially if they continue longer than a week, as fatal cases usually end during the first week. Cases from perforation unfavorable.

Chronic peritonitis being generally of tuberculous origin, the prognosis is unfavorable, although partial or complete recovery results in the cases following the acute form of the disease.

Treatment. *Acute form:* Idiopathic and robust cases, locally, *leeches* or *wet cups*, followed by *cold* or *hot* applications, as most agreeable to the patient; adynamic cases, *dry cups*, followed by warm applications medicated with *tinctura opii.*

Opium and *quinina* are the remedies indicated at the onset of the disease, to wit: at once hypodermatic of *morphina*, gr. ¼–⅓, maintaining the effect by hourly doses of either *morphina* or *opium*, by the mouth. Prof. Clark ascertained the tolerance of opium in this disease, by the tremendous amounts used in a case under his care; the first day he gave 200 grs., the second day 472 grs., the third day 236 grs., fourth day 120 grs., fifth day 54 grs., sixth day 22 grs., and on the seventh day 8 grains. Prof. Clark found that, as a rule, however, *morphina*, gr. ⅙–¼, every two hours, would maintain the effects of the drug. The *opium* should be guarded with sufficient doses of *atropina*. *Quinina*, gr. v, every four hours until exudation, after which gr. ij, four times a day, is of marked benefit.

The decline of the vital powers must be averted by *regulated nutrition* and *free stimulation.*

During *convalescence*, perfect quiet, nourishing aliment, moderate stimulation, scattered flying blisters, and the following:—

℞. Potassii iodidi..... gr. v–x
Ferri pyrophos..... gr. ij
Tincturi lavandulæ comp..... ♏xv
Syr. aurantii corticis.....ad..... ʒij M.
Every six hours,

should constitute the treatment, with tonic doses of *quinina.*

Peritonitis from *perforation*, absolute quiet, hypodermatic injections of *morphina*, ice locally, and stimulants per mouth, rectum, or hypodermatically.

Chronic peritonitis; locally, *tinct. iodi*, and internally, *opium*, for pain; *potassii iodidum* as an absorbent, with nourishing diet, *oleum morrhuæ* and *stimulants*, and rest in bed.

ASCITES.

Synonyms. Dropsy of the abdomen; peritoneal dropsy.

Definition. A collection of serous fluid in the abdomen, or more correctly in the peritoneal cavity; characterized by swollen abdomen, fluctuation, dullness on percussion, displacement of viscera, embarrassed respiration, *plus* the symptoms of its cause.

Causes. Ascites may form part of a general dropsy, to wit: cardiac or nephritic; the most common factor in its production is *mechanical obstruction* of the portal system, from cirrhosis of the liver, tumors, diseases of the heart or lungs.

Pathological Anatomy. The quantity of fluid in the peritoneal sac ranges from a few ounces to many gallons. It is generally of a straw color, or at times greenish, and is transparent, having an *alkaline* reaction. When blood is present in any great quantity, it points to cancer as a cause. The peritoneum becomes cloudy, sodden, and thickened, from long contact with the fluid.

Symptoms. The onset is insidious, and considerable *swelling of the abdomen* occurs before the disease attracts attention. *Constipation*, from pressure of the fluid on the sigmoid flexure. *Scanty urine*, from pressure on the renal vessels. *Embarrassed respiration* and *cardiac action*, from pressure on the diaphragm upward. The *umbilicus* is forced *outward*.

Physical signs; on *palpation*, a peculiar wave-like impulse is imparted to the hand laying on the side of the abdomen, while gently tapping the opposite side.

Percussion; patient erect, the fluid distends the lower abdominal region, with *dullness* over the site of the fluid and a *tympanitic note* above; if the patient turns on his side the fluid changes, and dullness over the fluid, tympanitic over the distended intestines.

Diagnosis. *Ovarian tumors* differ from ascites in the history, in that the enlargement is limited to the iliac fossa, instead of a

uniform abdominal enlargement, not changing its position when the patient changes posture, and by the detection of a tumor by conjoined manipulation through vagina, or by rectal exploration.

Pregnancy differs from ascites in the character of the enlargement, the history, absence of menses, increase of mammæ, change in the neck of the uterus, absence of fluctuation, and the presence of the sounds of the fœtal heart.

Distention of the bladder has been mistaken for ascites; the points of distinction are, in the former the history, presence of tenderness over the bladder, rounded outline of the percussion dullness, and the relief afforded by the catheter.

Chronic Peritonitis is differentiated by the history, pain, tenderness, more or less vomiting, thickened abdominal walls, and its generally being associated with tubercle or cancer.

Chronic Tympanites presents the enlarged abdomen, but lacks the history, the dullness and the fluctuation, giving instead a tense abdomen and a universal tympanitic note.

Prognosis. Influenced by the causes producing it. *Idiopathic ascites*, which is most rare, terminates in health within a few weeks. If *peritoneal*, generally favorable. If from *organic disease*, most unfavorable, for while it may be removed, it as rapidly returns.

Treatment. The first indication is to treat the cause of the ascites, and the second to remove the fluid.

Three modes of removing the fluid present themselves, to wit: *first*, by hydragogue cathartics, *second*, diuretics, and *third*, tapping. The first and second modes may be combined, as follows:—

℞. Pulv. jalapæ comp..... ℥j–ij
In water, an hour before breakfast;

And—

℞. Potassii acetat..... gr. x–xx–xl
Tinct. scillæ..... ℥ss
Infus. digitalis..... f℥iss. M.
Every six hours.

If these fail, as they certainly will after a time, the embarrassed respiration and cardiac action will call for *tapping*, which may be done with the *trocar*, or better still, the *aspirator*.

DISEASES OF THE BILIARY PASSAGES.

CATARRHAL JAUNDICE.

Synonyms. Catarrh of the bile ducts; icterus.

Definition. An acute catarrhal inflammation of the mucous membrane of the bile ducts and of the duodenum; characterized by gastro-intestinal derangement, yellowness, itching of the skin, feverishness and mental depression.

Causes. Excesses in eating and drinking; a debauch; malaria; climatic, as cool nights succeeding warm days.

Pathological Anatomy. The mucous membrane of one or more of the bile ducts or of the duodenum becomes hyperæmic, swollen and thickened, from an effusion of serum into the sub-mucous tissue; the result of this condition is the closure of the biliary passages, thereby impeding the outward flow of bile. The bile in the hepatic ducts being retained by the obstruction, the result is a staining of the liver substance and an *absorption* of bile, and its appearance in the blood.

Symptoms. Begins by *epigastric distress, coated tongue, impaired appetite, nausea*, with, perhaps, *vomiting* and *looseness of the bowels* and *slight feverishness*, the phenomena of a gastro-intestinal catarrh. In from three to five days the *eyes become yellow*, and *jaundice* gradually appears over the whole body; the feverishness disappears, the *skin* becomes harsh, dry and *itchy*, the *bowels constipated*, the *stools whitish* or *clay-colored*, accompanied with much *flatus* and *colicky pains;* the *urine heavy* and *dark*, loaded with urates and containing biliary elements.

A few drops of the urine placed on a whitish surface, and a drop or two of nitric acid made to flow against it, will exhibit the following "*play of colors*;" a *greenish* tint, from the conversion of bilirubin into biliverdin, quickly followed by *blue, violet, red*, and *yellow*, or *brown*.

When the *jaundice* is complete, the *surface is cold*, the *heart's action slow*, the *mind torpid* and *greatly depressed*, and pain or tenderness on pressure over the hepatic region.

Duration. In from three to five days after the jaundice appears, the symptoms subside, save the torpid bowels, depression and discolored skin, which slowly disappear, often requiring a week or two.

Diagnosis. After the appearance of the jaundice, mistakes are impossible.

The numerous diseases, of which jaundice is a symptom will be differentiated when treating of them.

Prognosis. Always favorable; if the attacks are of frequent occurrence, however, they are apt to lead to organic hepatic changes.

Treatment. At the onset *quinina*, gr. x, morning and night, may modify the disease, but as soon as the diagnosis is established the indications are for *diaphoretics*, *diuretics* and *purgatives*.

For *diaphoresis*, the *warm bath*, to which *potassii carbonas*, ℥j, may be added, morning and night.

For *diuresis*, *potassii bitartras lemonade*, every four hours.

For *purgation*, either *sodii pyrophos.*, ʒj–ij, every four hours, well diluted, or *ammonii murias*, gr. xv–xx, every five hours, well diluted.

A special plan, which is said to be effective, is with "enemata of cold water. By means of an irrigating apparatus the large intestine is well distended with water once a day for several days. The first enema has a temperature of 60° F., and subsequent injections are a little warmer. The increased peristalsis of the bowels and the reflex contractions of the gall bladder dislodge the mucus lining and obstruct the gall ducts. When the bile flows into the intestine, digestion is resumed and the catarrhal inflammation subsides." Other remedies may be conjoined with the irrigation method.

Restricted diet, avoiding all starchy, fatty or saccharine articles, milk being the most suitable.

For *convalescence*—

℞. Acid. nitrohydrochlorici dil..... gr. v–x
Elix. taraxaci comp..... ʒj–ij. M.
Before meals.

BILIARY CALCULI.

Synonyms. Hepatic calculi; gall stones; hepatic colic.

Definition. Concretions originating in the gall-bladder, or biliary ducts, derived partly or entirely from the constituents of the bile. Their presence is generally unrecognized until one or more attempt to pass along the ducts, when an attack of *hepatic colic* is produced.

Causes. Gall stones result from the *precipitation* of the crystallizable *cholesterine*, and its combination with inspissated mucus in the gall bladder or ducts.

A disease of middle life, and more frequent in the obese, and in women.

Gall stones are said to be common in carcinoma of the stomach or liver.

Pathological Anatomy. Cholesterine is the chief constituent of biliary calculi. Commonly several stones exist, and rarely one; as many as six hundred are recorded. They are generally found in the gall bladder or cystic duct, rarely in the liver or hepatic duct.

Symptoms. *Hepatic colic* begins suddenly, at the moment a gall stone passes from the gall bladder into the cyst duct.

The patient is seized with a *piercing, agonizing pain* in the region of the gall bladder, and spreading over the abdomen, right chest and shoulder; the *abdominal muscles* are *cramped* and *tender;* there is *nausea* and *vomiting*, a small, *feeble pulse, cool skin, pale, distorted, anxious face*, with, may be, fainting, spasmodic trembling, chills, or convulsions.

The paroxysm continues from an hour or two to several days, with remissions, but entire relief is not afforded until the stone reaches the duodenum, when the pain suddenly ceases.

Jaundice usually follows the paroxysm of pain. When the calculi reaches the intestines, the pain, nausea and vomiting cease, the appetite returns, and the jaundice soon disappears.

Should the calculi become impacted, *ulcerative perforation* and consequent *peritonitis* follow, the calculi discharging by the intestine, stomach, or through the abdominal walls.

Diagnosis. The malady should not be mistaken if *severe pain, nausea*, and *vomiting* are present, suddenly terminating, and followed by slight jaundice.

Prognosis. Usual termination is in health. The prognosis becoming more unfavorable if ulcerative perforation result.

Treatment. For the *colic*, hypodermatic injections of *morphina*, gr. $\frac{1}{6}$–$\frac{1}{3}$–$\frac{1}{2}$, combined with *atropina*, gr. $\frac{1}{120}$, and warm fomentations over the hepatic region, are indicated.

Prof. Bartholow strongly urges the following prophylactic treatment: Carefully regulated diet, abstinence from all fatty and saccharine substances, daily exercise, stoppage of all excesses, and the long use of *sodii phosphas*, ʒj, before meals, well diluted, to which may be added, if gastro-intestinal catarrh be present, *sodii arsenias*, gr. $\frac{1}{60}$, together with either Vichy or Saratoga Vichy water.

DISEASES OF THE LIVER.

CONGESTION OF THE LIVER.

Synonyms. Torpid liver; biliousness.

Definition. An abnormal fullness of the vessels of the liver, with consequent enlargement of that organ; it is termed *active* when arterial; *passive* when venous. The condition is characterized by torpidity of the digestive and mental functions, and slight jaundice.

Causes. *Active congestion;* malaria; excess in eating and drinking; alcoholic or malt liquors.

Passive congestion; cardiac and pulmonary diseases.

Pathological Anatomy. The liver is enlarged in all directions, and is abnormally full of blood. Cases due to obstructive diseases of the heart or lungs present the so-called "nutmeg liver," to wit: "At the centre of each lobule the dilated radicle of the hepatic vein, enlarged and congested, may be discerned, while the neighboring parts of the lobule are pale," the radicles of the portal vein containing less blood.

Long continued congestion establishes atrophic degeneration of the organ; the decrease in size is confounded with the condition of cirrhosis, but the "atrophic liver" is smooth, while the "cirrhotic liver" is nodulated.

Symptoms. *Active congestion;* following cause, rapidly produced *malaise, aching of limbs,* evening *feverishness, headache, yellowish tongue,* disgust for food, *nausea,* and, may be, *vomiting, constipation, scanty,* high-colored *urine,* with a feeling of *fullness, weight,* and *soreness* in the hepatic region, and slight *jaundice,* the *eye yellow,* and the *complexion muddy.*

Passive congestion; onset gradual, with a feeling of weight and fullness in the hepatic region, slight jaundice, and symptoms of gastro-intestinal catarrh.

On percussion the hepatic dullness is increased in all directions.

Diagnosis. Acute congestion is continually confounded with *catarrhal jaundice;* the latter begins with marked gastro-intestinal symptoms and distinct jaundice; in the former these are less marked.

Obstructive congestion is diagnosticated by the clinical history.

Atrophic or *nutmeg liver* will be differentiated from cirrhotic liver when speaking of the latter.

Prognosis. *Active congestion* favorable, unless repeated attacks occur, rapidly succeeding each other, when "atrophic degeneration" results.

Passive congestion controlled entirely by the cause.

Treatment. Attacks due to *excess in eating and drinking* :—

℞. Sodii bicarb..... gr. v
Pulv. ipecac..... gr. ss
Hydrargyri chlor. mit..... gr. iij–v

followed by

℞. Acidi nitrohydrochlorici dil..... ♏viiss
Elix. taraxaci comp..... ʒij.

Before meals, and a milk diet.

Attacks due to *malaria*: the above purgative followed by *quininæ sulph.*, gr. iv, every four hours.

Attacks occurring with cardiac or pulmonary diseases must be managed by treating the cause.

The tendency to constipation must be overcome by the *saline laxative waters*, to wit: Congress or Hathorn, Pullna or Friedrichshall, or *sodii phosphas*, ʒi–ij, three or four times daily, well diluted

Locally, in acute attacks, hot cloths or sinapisms, are of benefit.

In *chronic cases* benefit follows, *elix. quininæ ferri et strychninæ*, ʒj, three times a day, and great comfort and support is given by the use of the "*hydropathic belt*," which is made of stout muslin, shaped to the abdomen, with cross pieces of tape on the inner side, which keeps next to the skin a fold of cloth wrung out of cold water, and a piece of waterproof cloth or oiled silk, to prevent evaporation.

ABSCESS OF THE LIVER.

Synonyms. Parenchymatous hepatitis; acute hepatitis; suppurative hepatitis.

Definition. A diffused or circumscribed inflammation of the hepatic cells, resulting in suppuration, the abscesses being sometimes single, at times double; characterized by irregular febrile attacks, hepatic tenderness and symptoms of deranged gastro-intestinal and hepatic functions.

Causes. The result of the absorption of putrid material by the portal radicles in dysentery; ulcers of the stomach; malaria; blows and injuries; heat; pyæmia.

Pathological Anatomy. Hyperæmia, swelling, effusion of lymph, degeneration and softening of the hepatic cells; suppuration, beginning in points in the lobules and coalescing. The abscess walls consist of the liver structure, more or less changed.

The abscess may advance toward the surface of the liver, bursting into the peritoneum, intestines, stomach, gall bladder, hepatic duct or vein, or into the pleura or lungs, or externally through the abdominal walls; after the discharge of pus, cicatrization occurs, or the pus may be absorbed, the tissues around forming a dense cicatrix.

Symptoms. Very obscure. *Fever* simulating markedly intermittent or remittent fevers; disorders of the gastro-intestinal canal, with *obstinate vomiting*, *debility*, and great *irritability* of the *nervous system*, slight *jaundice*, and if of long duration, *typhoid symptoms*.

Locally, if the abscess is near the surface, *prominence of the hepatic region*, *throbbing*, limited *tenderness*, and if it tends to the surface, redness, œdema and fluctuation. The abscess may burst into the intestines, stomach, lungs, or pleura, the symptoms of which will be pronounced.

Diagnosis. Hepatic abscess may be confounded with hydatids of the liver, hepatic or gastric cancer, abscess of the abdominal walls, and purulent effusion in the right pleural cavity.

The differentiation is most difficult, but *great aid* is obtained from the use of the *aspirator*.

Prognosis. Unfavorable. Recoveries, however, do occur. If the abscess bursts into the lungs, bowels, or externally through the abdominal wall, the case is more favorable.

Treatment. *Symptomatic*, and when *pus* is present, the use of the *aspirator* to remove it, and sustaining treatment, to wit: *quinina*, *ferrum*, *alcohol*, and *oleum morrhuæ*.

ACUTE YELLOW ATROPHY.

Synonyms. General parenchymatous hepatitis; malignant jaundice; hemorrhagic icterus.

Definition. An acute diffused or general inflammation of the hepatic cells, resulting in their complete disintegration: characterized by diminution in the size of the liver, deep jaundice, and profound disturbance of the nervous system; terminating in death, usually, within one week.

Causes. Unsettled. It occurs frequently in young pregnant women, from the third to the sixth month of pregnacy. Other causes are venereal excesses; syphilis; action of phosphorus, arsenic or antimony.

Pathological Anatomy. Begins with hyperæmia of the hepatic cells, with a grayish exudation between the lobules, followed by softening, dull yellow color, and disappearance of the cells, fat globules taking their place. The liver is reduced in size and in weight. The peritoneum covering the liver is thrown into folds. The spleen is enlarged. The kidneys undergo degeneration. The blood contains a large amount of urea and considerable leucin. The urine is loaded with bile pigment, and contains albumen.

Symptoms. *Prodromic period;* begins as a *gastro-intestinal catarrh*, coated tongue, nausea, vomiting, tenderness over the epigastrium, headache, quickened pulse, slight fever and slight *jaundice.*

Icteric period; jaundice deepens, pulse slow, headache increases, and great and obstinate *sleeplessness.*

Toxæmic period; fever, rapid *pulse*, more complete *jaundice, pain*, nausea, *vomiting of blackish, grumous blood*, or "coffee grounds," *tarry stools*, ecchymotic patches, *convulsions*, or epileptiform attacks, *coma*, insensibility, death.

Percussion shows markedly *decreased* hepatic dullness.

Duration. Short. After appearance of jaundice, about six days.

Prognosis. Unfavorable.

Treatment. Entirely symptomatic. Prof. Bartholow "advises the trial of very small doses of phosphorus, as early as possible, as this remedy affects the organ specifically, and an action of antagonism may be discovered between them."

SCLEROSIS OF THE LIVER.

Synonyms. Interstitial hepatitis; cirrhosis; hob-nailed liver; gin drinkers' liver.

Definition. An inflammation of the intervening connective tissue of the liver, chronic in its progress, resulting in an induration or hardening of the organ and an atrophy of the secreting cells; characterized by gastro-intestinal catarrh, emaciation, slight jaundice and ascites.

Causes. The prolonged use of alcoholic stimulants, gin, whiskey, *beer*, or porter; syphilis.

Pathological Anatomy. *First stage;* hyperæmia of the connective tissue (Glisson's capsule) of the liver, and the development of brownish-red connective-tissue elements, whereby the organ is increased in size and density; this increase of the connective tissue presses upon the hepatic cells, causing them to undergo fatty degeneration.

Second stage; the newly formed, imperfectly developed connective tissue contracts, causing decrease in the size and induration of the organ, its surface being nodulated. The hepatic and portal circulation is obstructed, from obliteration of their radicles.

The hepatic peritoneum is thickened and opaque, and adhesions are formed to the diaphragm, gall-bladder, and stomach.

Cases occur in which the sclerosis takes place while the organ continues enlarged; these are known as *hypertrophic sclerosis.*

Symptoms. No characteristic symptoms of the early stage of the affection. Persistent *gastro-intestinal catarrh*, with attacks of *jaundice*, in a drinking man, are suspicious. Symptoms of the second stage are, *abdominal dropsy*, *enlargement* of the superficial *abdominal veins*, *dyspepsia*, localized peritoneal *pain*, *hemorrhages* from the *stomach* or *intestines*, muddy or slightly *jaundiced* skin and *decided emaciation.*

Diagnosis. *Atrophy of the liver*, or the nutmeg liver, is almost always confounded with sclerosis; the former occurs most commonly with obstructive diseases of the heart and lungs, and the surface of the organ is not nodulated, nor is there a history of alcoholism.

Cancer and tubercle of the peritoneum have many symptoms akin to sclerosis. The points of differentiation are, great tenderness over abdomen, rapidly developed ascites, rapid decline in strength and flesh, absence of jaundice, absence of long-continued dyspepsia, absence of hepatic changes on percussion, and the presence of tubercle or cancer deposits in other organs.

Prognosis. Terminates in death. Average duration after appearance of the dropsy, one year.

Treatment. For the changes in the hepatic structure, little, if anything, can be done; the following are some of the remedies recommended, to wit: *hydrargyri chloridum corrosivum*, gr. $\frac{1}{60}$–$\frac{1}{40}$, three times a day; *hydrargyri chloridum mite*, gr. $\frac{1}{100}$, three times a day; *aurii et sodii chloridum*, gr. $\frac{1}{20}$, after meals; *sodii phosphas*, ʒss–j, after meals.

The diet must be regulated, *milk* being the most suitable, and avoiding fatty and saccharine foods.

The abdominal dropsy may be temporarily benefited by *purgatives* and *diuretics*, but sooner or later *tapping* becomes imperative.

AMYLOID LIVER,

Synonyms. Waxy liver: lardaceous liver; scrofulous liver; albuminoid liver.

Definition. A peculiar infiltration into, or a degeneration of, the structure of the liver, from the deposit of an albuminoid material, which has been termed *amyloid*, from a superficial resemblance to starch granules.

Causes. The chief cause is prolonged suppuration, especially of the bones; coxalgia; syphilis; cancer.

Pathological Anatomy. The liver is uniformly enlarged. It presents a pale, glistening, translucent appearance, and has a doughy consistency. On section, the surface is homogeneous, is anæmic and whitish. The deposit begins in the arterioles and capillaries, finally closing them.

The reaction with iodine and sulphuric acid affords a certain test of the amyloid or albuminoid deposits. After thorough cleansing, brush over the parts a solution of iodine with iodide of potassium in water, when they will assume a mahogany color, and if diluted sulphuric acid be added, a violet or bluish tint is produced.

A pretty reaction is to take a one per cent. solution of anilin violet, which strikes a red or pink color with the amyloid or albuminoid material, while the unaltered tissues are stained blue, thus showing a beautiful contrast.

The amyloid change involves the spleen, kidney, intestines, and other organs.

Symptoms. Nothing characteristic. Hepatic dullness increased, with prominence over the liver. Absence of pain. Splenic dullness increased. Emaciation and anæmia. Urine increased in amount, pale, and containing some albumen, due to amyloid changes in the kidneys. Disorders of digestion, with diarrhœa, due to amyloid changes in the intestines. Jaundice is rare. Ascites seldom occurs.

Prognosis. Unfavorable. The progress is rapid or slow, depending upon the cause.

Treatment. No specific. Symptomatic, with prolonged use of *ferrum; syr. calcii lacto-phosphas* and *oleum morrhuæ.*

HEPATIC CANCER.

Synonym. Carcinoma of the liver.

Definition. A peculiar morbid growth, progressively destroying the hepatic tissue; characterized by disorders of digestion, anæmia, emaciation, jaundice and ascites, and terminating in the death of the patient.

Causes. Hereditary, when it is termed *primary* cancer; from extension from other organs, when it is termed *secondary* cancer. It is a disease of advanced life, from forty to sixty years.

Pathological Anatomy. The most common variety of cancer of the liver is a compound of the medullary and scirrhus.

The cancer cells develop from the interlobular connective tissue, and as they grow the hepatic cells atrophy, the result of the pressure of the new growth. The branches of the hepatic artery enlarge and permeate the growth, while the branches of the portal vein are compressed and atrophied, thereby blocking up the portal circulation.

The cancer may develop in nodules or masses, or may be diffused; the nodules vary in size, and those on the surface are rounded, with a central umbilication. The peritoneum is adherent, cloudy and thickened.

Symptoms. The development of hepatic cancer is preceded by a history of dyspepsia, flatulency and constipation. Then *uneasiness, weight* and *pain*, increased by pressure, are noticed; *jaundice, ascites*, occasional intestinal *hemorrhages, emaciation, feebleness, anæmia, cold, dry, harsh skin, pinched features*, with *dejected*, worn *expression. Fever never occurs.* The hepatic dullness is increased, with pain on palpation, and the liver is indurated, irregular and nodulated.

The duration is less than a year from the time the disease is recognized.

Diagnosis. The points of differentiation are the *age, cachexia, pain* and *tenderness, enlarged liver* with *hard nodules*, and *rapid progress.*

Prognosis. Always terminates in death.

Treatment. Early symptomatic. Sooner or later *opium* must be used, to relieve the terrible and persistent pain.

DISEASES OF THE KIDNEYS.

THE URINE.

The *normal quantity* of urine varies from twenty to fifty ounces in the twenty-four hours; it is *decreased* by free perspiration and *increased* by chilling of the skin.

The *normal color* is light amber, due to *urobilin;* the color deepens if the quantity voided be decreased, and *vice versa.*

The *normal reaction* is slightly *acid,* due to the *acid sodic phosphate, uric* and *hippuric acids.* After meals it may be *neutral* or even *alkaline.*

The *normal specific gravity* varies from 1.008 to 1.020; it is *low* when an increased quantity is passed and *high* when the quantity is diminished.

The most important organic and inorganic solid constituents held in solution are, *urea* (the index of nitrogenous excretion), from 308 to 617 grains daily; *uric acid,* from 6 to 12 grains; *urates of sodium, ammonium, potassium, calcium* and *magnesium,* from 9 to 14 grains; *phosphates of sodium,* etc., from 12 to 45 grains, and *chlorides of sodium,* etc., from 154 to 247 grains daily.

I. Quantitative test for *urea,* by hypobromite of sodium (Davy's Method).

Fill a graduated glass tube one-third full of *mercury,* and add one-half drachm of the 24 hours' urine; then fill the tube evenly full with a saturated solution of *hypobromite of sodium,* and close it *immediately* with the thumb; invert the tube and place its open end beneath a sat. sol. of *chloride of sodium;* the mercury flows out and is replaced by the solution of salt; *nitrogen gas* is disengaged from the urea in the upper part of the tube.

Each *cubic inch of gas* represents .645 gr. of urea in the half drachm, from which the amount passed in 24 hours may be calculated.

II. Tests for *urates* and *uric acid* by nitric acid.

Urine containing an excess of urates and uric acid, on *cooling*, precipitates them (viz: "brickdust deposits" in "pot de chambre"). *Heat* dissolves them to a certain extent.

Nitric acid deprives the soluble *neutral urates* of their bases, and produces, at first, a faint, milky precipitate of amorphous *acid urates;* adding more acid, the still less soluble *red crystals of uric acid* are deposited.

Put a small quantity of *nitric acid* in a test tube, and pour the urine carefully down the sides of the tube upon it, and a *zone* of *yellowish-red uric acid* and altered coloring matter will form at their union; and a dense, milky *zone* of *acid* urates above this, which, however, dissolves upon agitation. (See albumen test.)

III. Quantitative test for *uric acid* by nitric acid.

To *three ounces* of the 24 hours' urine (after being slightly acidulated, boiled and filtered while hot) add *one-tenth* as much *nitric acid;* place in a cool place for 24 hours, then collect the deposit of *uric acid* on a weighed filter, wash it thoroughly, and dry at 212° F. The increased weight represents the uric acid in part excreted, approximately.

IV. Test for the earthy and alkaline *phosphates* by the magnesian fluid.

Heat or liquor potassa increases the cloudiness caused by earthy calcium and magnesium phosphates. *Acetic* or *nitric acid* clears it, by dissolving them.

To two ounces of urine add one-third as much of the following solution, to wit: ℞. Magnesii sulph., ammonii chloridum puræ, liquor ammoniæ, each one part; aquæ destil., eight parts; if the precipitate has a *milky*, cloudy appearance, the quantity of phosphates is normal; if *creamy*, the *phosphates* are in excess.

V. Test for the *chlorides* by nitrate of silver.

To a convenient quantity of urine add small amount of nitric acid, to prevent the formation of the phosphates and other salts of silver; filter this, if cloudy; add to this *one drop* of a solution of nitrate of silver (1 part to 8) and the precipitate of white cheesy lumps of *chloride of silver* denotes that the amount of *chlorides* are normal; if, however, only a *faint milkiness* occur, the *chlorides* are diminished.

VI. Test for *mucus* by acetic acid and liquor iodi comp.

Mucus alone is not visible, but causes *cloudiness*, from having entangled mucus or pus corpuscles, epithelium, granules of sodium urate, crystals of oxalate of lime and uric acid in various amounts.

Add to the urine a little *acetic acid*, or, in addition, a few drops of *liquor iodi comp.*, when threads or bands of *mucin* are made visible. The addition of *nitric acid* dissolves them.

VII. Tests for *albumen* by heat and nitric acid.

Slightly acidulate the urine, if necessary, by addition of nitric or acetic acid, and *boil;* this causes a *white* deposit of *coagulated albumen*, which is not dissolved by nitric acid, unless the acid is in excess.

Nitric acid causes a *white* deposit of *coagulated albumen*, which is dissolved if a large excess of acid be added. A delicate test is to put the *nitric acid* in the tube first, and then gradually pour the urine down the side of the tube upon it, when a *white zone*, or *ring* of *coagulated albumen* appears. *Precaution*, see tests Nos. 3, 4, 9 and 11.

VIII. Quantitative test for *albumen*. Approximately.

Add a few drops of *nitric acid* to a proportion of the urine, and *boil;* set this away for 24 hours, and the proportionate depth of the resulting deposit is the comparative indication, viz., ¼–½, etc.

IX. Test for *blood* by heat and nitric acid.

Heat or nitric acid causes deposit of albumen, with the coloring matter changed to a *dirty brown*.

X. Test for *blood* by heat and caustic potash (Heller's).

Heat the urine, then add *caustic potash* and *heat* anew. The phosphates are thus precipitated, taking with them the coloring matter of the blood, which imparts a *dirty, yellowish-red* color to the sediment, viewed by reflected light, and when seen by transmitted light, gives a splendid *blood-red color*.

Neither the coloring matter of the blood, nor that of the bile, is precipitated with the phosphates, so that coloration of urine which shows this reaction cannot be ascribed to the presence of the latter pigments.

When the quantity of blood in the urine is very large, it is of a *dark* or *brownish red*, and, after standing, forms a coagulum of blood at the bottom of the vessel.

XI. Test for *pus* by liquor potassa.

Caution. Heat or nitric acid causes coagulation of the albumen in pus.

Add to the urine, or preferably to its deposit from standing, an equal volume of *liquor potassa;* when well mixed, a *viscid gelatinous fluid* or mass is formed, which pours like the white of an egg, or jelly.

XII. Test for *bile* by "fuming" or red nitric acid.

Allow a specimen of urine and a few drops of red "fuming" *nitric acid* to gradually intermingle on a porcelain dish, and a "play of colors," *green, blue, violet, red* and *yellow* or *brown*, occur, if biliary coloring matter be present.

XIII. Test for *bile pigment* by pure hydrochloric and pure nitric acids (Heller's).

Pour into a test tube about 1.6 f℥ of pure *hydrochloric acid*, and add to it, drop by drop, just sufficient *urine* to distinctly color it. The two are mixed. Then drop down the side of the test tube pure *nitric acid*, which will "underlay" the mixture of hydrochloric acid and urine. At the point of contact between the mixture and the colorless nitric acid a handsome "play of colors appears." If the "underlying" nitric acid is now stirred with a glass rod, the set of colors which were superimposed upon one another will appear alongside of each other in the entire mixture, and should be studied by transmitted light.

If the hydrochloric acid, on addition of the biliary urine, is colored *reddish-yellow*, the coloring matter is *bilirubin*; if it is colored *green*, it is *biliverdin*.

XIV. Test for *sugar* by liquor potassa and heat (Moore's).

Add to the urine half its volume of *liquor potassa*. (*Caution*. This *may* give a white, flaky precipitate of the earthy phosphates, which should be removed by filtering). Now *boil*; this causes, at first, a *yellowish-brown* color, becoming *darker* if much sugar is present, due to glucic, and finally to melassic acid.

XV. Test for *sugar* by subnitrate of bismuth, liquor potassa and heat.

Add to the urine half its volume of *liquor potassa*, and then a little *bismuth subnitrate*, shake and thoroughly *boil*; the presence of sugar reduces the salt and *black metallic bismuth* is deposited, or if but little sugar, a *gray deposit* occurs.

Caution. Albumen must be absent.

XVI. Test for *sugar* by a solution of cupric sulphate, liquor potassa and heat (Trommer's).

Add to the urine a few drops of a solution of *cupric sulphate*, and then its own volume of *liquor potassa*. (*Caution*. On first addition a light greenish precipitate occurs, which, on further addition of the reagent, if sugar or certain other organic matters are dissolved, giving a transparent blue liquid). Now *boil*, and a *yellowish* precipitate of *hydrated cupric suboxide*, occurring at once, denotes the *presence of sugar*.

Caution. Albumen must be absent.

XVII. Quantitative test for *sugar* by *Pavy's* solution, to wit:—

℞.

Cupric sulphate, gr. 320
Neutral potassic tartrate..... gr. 640
Caustic potash... gr. 1280
Distilled water.. f℥ 20
Keep corked.

Take of *Pavy's* solution of *cupric protoxide*, recently prepared (see margin), 200 minims or a multiple of this quantity, and *boil* in a porcelain dish; while boiling, add, minim by minim, from a measured portion of the 24 hours' urine, and it gives a *yellowish* precipitate of *hydrated cupric suboxide*, if sugar be present.

Note *carefully* the gradual disappearance of the *blue color*, and when *completed* (best determined by looking through the margin of the fluid against the white porcelain dish), from the amount of urine used, determine the amount of sugar passed daily. *The quantity of urine containing one grain of sugar being just sufficient to reduce the 200 minims of* the *copper solution.*

XVIII. Quantitative test for *sugar* by fermentation and the specific gravity.

Take *two* measured specimens from the 24 hours' urine, and to *one* add a little *yeast*. Place each specimen in a temperature of 75° to 80° Fah.; in 24 hours, *fermentation* having destroyed the *sugar* in the *one* containing the *yeast*, the difference in the *specific gravity* of the two specimens expresses the number of grains in each ounce of the urine. Approximately.

CONGESTION OF THE KIDNEYS.

Synonyms. Renal hyperæmia; catarrhal nephritis.

Definition. An increase in the amount of blood in the vessels of the kidneys; when arterial, it is termed *active congestion;* when venous, *passive congestion;* characterized by pain, frequent desire for urination, the amount of urine scanty, high-colored, occasionally containing albumen or blood.

Causes. *Active;* by cold; irritating substances eliminated by the kidneys, to wit: turpentine, copaiba, cantharides; during the eruptive or continued fevers; injuries over the kidneys.

Passive; obstructive diseases of the heart or lungs, and pressure of the pregnant uterus.

Pathological Anatomy. The kidneys enlarge and increase in weight; increased redness (the color being bluish if *passive*), with points of vascularity, corresponding to the Malpighian bodies, and occasionally minute ecchymoses. The abnormal hyperæmia causes a catarrhal state of the ducts of the pyramids, with shedding of their epithelium.

If mechanical (*passive*) obstruction continues for some time, increase of the connective tissue, with consequent induration and contraction results, or a form of chronic Bright's disease.

Symptoms. *Active variety; pain* over kidneys and following the course of the ureters into the testicles and penis, *irritable bladder*, almost constant and pressing desire for urination, the *urine scanty, high-colored*, and occasionally bloody, with fibrin, casts and albumen.

If the condition persist, *inflammation* of the kidney results.

Passive; the kidney changes are masked by the *lung* or *heart* trouble, until *dropsy, scanty, high-colored, albuminous* urine is observed.

Prognosis. *Active;* if recognized and properly treated, favorable.

Passive, controlled by the cause, and if prolonged, terminating in *interstitial nephritis.*

Treatment. Rest of the body; dry or wet cups over the loins; dilute the urine by increasing the quantity of bland fluids consumed; *saline purgatives;* warm bath or other mild diaphoretics; if great *irritability of the bladder, camphora*, gr. ij–iv, every four hours, combined with *morphinæ sulph.*, gr. $\frac{1}{12}$–$\frac{1}{6}$, or the hypodermatic injection of *morphina*, gr. $\frac{1}{12}$.

ACUTE BRIGHT'S DISEASE.

Synonyms. Acute desquamative nephritis; acute parenchymatous nephritis; acute tubal nephritis.

Definition. An acute inflammation of the epithelium of the uriniferous tubules; characterized by fever, scanty, high-colored or smoky urine, dropsy, with more or less constant nervous phenomena, the result of acute uræmia.

Causes. The young more liable than the aged; cold and exposure; scarlatina; persistent use of irritants, to wit: turpentine and cantharides.

Pathological Anatomy. The kidneys are greatly swollen, engorged, more vascular, and of a red color; in the second stage the organ remains large, irregularly red, especially the cortex; the tubules are engorged and filled with epithelium, blood corpuscles and fibrin. The capsule is easily detached, and is more opaque than normal.

If a favorable termination, the swelling lessens, the vascularity diminishes, the tubules returning to a normal condition.

Symptoms. Usually begins suddenly. *Fever*, with *nausea* and *violent* and *persistent vomiting*, dull *pain* over the kidneys, following the ureters; *skin* harsh and dry; *pulse* quick, tense and full. Soon *dropsy* appears, the eyelids and face becoming puffy and swollen, followed by general œdema of the extremities, scrotum and abdominal walls. If the attack follow scarlatina there are from the onset much greater pallor and general debility.

The *urine* is of high specific gravity, scanty, smoky (like beef washings) in color, due to the presence of *blood*. *Albumen* is present in large quantities, and the microscope reveals *casts* of the uriniferous tubules, blood corpuscles, uric acid, urates and oxalate crystals and epithelium.

Duration from one to four weeks.

Complications. *Pericarditis*, *pleuritis*, *pneumonitis*, *peritonitis*, or *acute uræmia*, from retention and decomposition of urea in the blood.

Diagnosis. The history, fever, scanty, smoky, albuminous urine, with dropsy beginning in the face, should prevent any error.

Albuminuria may be confounded, on account of the presence of albumen in the urine, but lacks the clinical history, usually occurring

in the course of some constitutional affection, to wit: diphtheria, cholera, yellow fever or erysipelas.

Prognosis. Favorable. Majority of cases recover under prompt treatment. Rarely passes into chronic Bright's disease. *Uræmic* symptoms add to the gravity of the prognosis.

Treatment. Absolute *rest in bed*. *Milk diet*, or if much depression, also weak *animal broths* and *oysters*. Drink freely of *water*, but neither tea, coffee nor stimulants. *Counter-irritation* over the kidneys by dry or wet cups, and poultices of *digitalis*.

Free *purgation* by *pulv. jalapæ comp.*, ʒj, in water, before breakfast, or *elaterium*, gr. ½.

Diaphoresis by warm baths, or *infusum pilocarpi*, ℥ j-ij, every three or four hours, or *vinum ipecacuanhæ*, gtt. j–ij, every half hour.

Diuresis, by—

℞. Potass. acetas..... gr. x–xx
Infus. digital ..... fʒij
Infus. juniperi..... fʒij. M.
Every two or four hours.

As soon as the blood disappears from the urine, a course of *ferrum*, in the shape of *Basham's mixture*, until albumen disappears and health is restored. The following is the formula of Basham's mixture:—

℞. Liq. ammon. acetat..... f℥vj
Acid acetic..... ℥iij
Tinct. ferri chlor..... fʒv
Alcoholis..... ℥ij
Syrup ..... f℥iv
Aquæ ..... fʒiv. M.
SIG.—Dose fʒj–f℥j.

CHRONIC PARENCHYMATOUS NEPHRITIS.

Synonyms. Chronic Bright's disease; chronic tubal nephritis; chronic albuminuria; large white kidney.

Definition. A chronic inflammation of the cortical and tubular structure of the kidneys; characterized by albuminous urine, dropsy, increasing anæmia, with attacks of *acute uræmia*.

Causes. Occasionally follows the acute form; syphilis; chronic malaria; chronic alcoholism; chronic mercurialism; lead poisoning; protracted suppuration.

It is a disease of the young, rarely occurring after forty.

Pathological Anatomy. A large white, or yellowish-white, smooth kidney, often twice the normal size. The capsule is nowhere adherent to the organ. Upon section, considerable tumefaction of the cortical substance and the rarity of vascular striæ are recognized. The medullary substance shows no appreciable alteration, its color being normal. The convoluted tubes are irregularly dilated and thickened, and filled with broken-down, granulated epithelium and fibrinous casts. In pronounced cases there is fatty degeneration of the tubular epithelium.

"The intertubular matrix is greatly thickened—a change due to hyperplasia of the connective-tissue elements, to the migration of the white corpuscles and their subsequent multiplication and fatty transformation, and to a quantity of fluid exudation, the product of the increased pressure in the veins."

Symptoms. The onset is gradual and insidious, and the affection is seldom recognized until the appearance of *dropsy*, which, beginning under the eyes and in the face, extends all over the body, causing *dyspnœa* from *ascites* or *hydrothorax*. The *urine* is scanty, high-colored, *albuminous*, and under the microscope showing hyaline and granular *tube casts*, granular epithelium, and if fatty degeneration occur, *fatty tube* casts and oil globules. The increase above the normal amount of the urine as the disease progresses must not be forgotten, when the specific gravity is low, 1.010–1.015, and the quantity of albumen is increased.

Anæmia is pronounced, from the large waste of albumen. *Gastro-intestinal* disorders and vague *neuralgic pains* are common occurrences. *Cardiac hypertrophy* is of common occurrence. *Bronchial catarrh*, with slight *œdema of the larynx*, causing *husky voice*, are frequent complications. *Amaurosis*, the result of *neuro-retinitis*, occurs in a greater or less degree in all pronounced cases. *Uræmic* symptoms occur, and especially *uræmic asthma* (renal asthma).

Complications. Pneumonitis, pleuritis, pericarditis, peritonitis, and meningitis.

Prognosis. Not unfavorable, unless urine persistently contains large number of *fatty tube* casts and *oil globules*. Relapses are frequent, but many complete (?) recoveries are recorded.

Treatment. It is to be borne in mind that the course of a case of chronic Bright's disease is not continuously downward; periods of

remission often follow the most aggravated symptoms, the patient and his friends being buoyed into the hope of an early and complete recovery, when, as suddenly, an attack of acute uræmia terminates life.

Rest and *diet* are important elements in the treatment.

A patient with chronic Bright's disease should, as far as possible, be relieved from all cares of business and spend a goodly portion of time in bed.

The *diet* should be entirely, or as nearly so as possible, a *milk diet*, the daily amount used being from two to four quarts. The moderate use of a light wine is at times of advantage if taken with the food, although a fair number of cases do better without stimulants.

The use of *diaphoretics* and *hydragogue cathartics* are only indicated when the dropsy is marked, the skin harsh and dry, the urinary secretion scanty and uræmic symptoms are threatening.

Diuresis should be promoted, if the secretion is small, by *digitalis*, *caffein* or *arbutin* internally, and dry cups and poultices over the loins.

The *anæmia* is to be treated by *oleum morrhuæ*, *arsenicum* and *ferrum*, an excellent formula for the latter being—

℞. Strychninæ sulph..... gr. ¼
Tinct. ferri chloridi..... f℥ss
Acidi acetici puræ..... f℥iss
Curacoæ alba..... f℥j
Liq. ammonii acetat.....ad..... f℥vj. M.

SIG.—Tablespoonful every five hours, followed by a glass of cold water.

To check the waste of *albumen*, a difficult matter, the following remedies have been used with more or less success: *ergota*, *quinina*, *acidum gallicum*, *acidum benzoicum*, *tinctura cantharidis*, *potassii iodidum*, and, lastly, the Russian remedy, *blatta orientalis* (cockroach).

For *dropsy*, purgatives, such as *pulvis jalapæ compositus*, *hydragogue cathartics* and alkaline mineral waters. If there be great distention of the serous cavities, interfering with the respiration, the *aspirator* should be used. Puncture of the skin may be necessary at times, and is well accomplished with an ordinary cambric needle.

Cases due to *syphilis*, if the loss of renal structure is slight, are cured by a course of *hydrargyri corrosivum chloridum* and *potassii iodidum* with *oleum morrhuæ*.

INTERSTITIAL NEPHRITIS.

Synonyms. Chronic Bright's disease; sclerosis of the kidneys; contracted kidneys; small red kidney; gouty kidney.

Definition. An inflammation of the intervening connective tissue of the kidney, chronic in its progress, resulting in an induration or hardening, with contraction of the organ; characterized by frequent passing of large amounts of pale, albuminous urine, of low specific gravity, disorders of the gastro-intestinal and nervous systems, and a strong tendency to cardiac hypertrophy and changes in the vessels.

Causes. A disease of middle life, from forty to sixty years. Gout a very common cause; lead cachexia; syphilis; alcoholism; alterations in the renal ganglionic centres (DaCosta and Longstreth).

Pathological Anatomy. The *kidneys* are reduced in size. The *capsule* is thickened, opaque and adherent. The *surface* of the kidney is granular, with cysts of various sizes, of transparent color, irregularly over the surface. On section the *tissue* of the kidney is tough and resistant. The *cortical* portion is thin, from atrophy, being only a line or two in thickness. The *connective tissue* is greatly thickened, compressing the tubules into mere threads, the *glomeruli* being grouped together in bunches, owing to the wasting of the intermediate tubes. The *color* varies, from a darkish-brown to a yellowish-gray, according to the amount of blood in the organ.

The left side of the *heart* is hypertrophied, and there is also hypertrophy of the muscular fibre of the *arterioles* throughout the body; if the case is protracted the hypertrophied tissues undergo fatty degeneration.

In many cases there occur fatty degeneration of the retinal tissues, or sclerosis of the nerve-fibre layer, changes which are termed *retinitis albuminuria*.

The "*ganglionic centres*" undergo fatty degeneration and atrophy (DaCosta and Longstreth).

Apoplexy is a frequent termination of interstitial nephritis, the rupture of a cerebral vessel suggesting it to be a disease of degeneration.

Symptoms. Onset insidious, and often marked alterations in the kidneys, heart and vessels have occurred before the disease is recognized.

Any of the following symptoms may first attract attention, to wit: *frequent micturition, increased* amount of *urine*, of a *pale color*, containing a small amount of *albumen*, which may be absent for days, occasional *epithelial cells* and *hyaline casts*. No dropsy, but a little *puffiness* and *œdema* of the *conjunctiva*—the Bright's eye. *Disorders of vision. Forcible cardiac action* with *high arterial tension*. And any of the following symptoms, the result of *uræmia:* Persistent *dyspepsia*, occasional *vomiting*, regardless of food; *headache, vertigo* and *stupor*, or *drowsiness;* violent *itching* of the skin; *tremors, convulsions, epileptic* seizures, or *apoplectic attacks*.

The body weight declines, the skin is dry and scurfy, the strength fails, and shortness of breath on exertion is present.

The *termination* is usually by convulsions, coma and death.

Complications. Bronchitis; pneumonitis; pleuritis; pericarditis.

Diagnosis. Differs from *parenchymatous nephritis* in the following: large quantity of urine, clear, of low specific gravity, small amount of albumen, with few hyaline casts; the hypertrophied heart and tense arteries and marked disorders of vision.

Prognosis. Pursues a very chronic course; cases recorded under observation eleven years; but the termination is always fatal.

Treatment. Regulated diet. Diaphoretics. Diuretics. Avoid alcoholic stimulants. As nearly absolute rest as patient's general health will permit.

To prevent the growth of the connective tissue the following remedies are recommended, to wit: *potassii iodidum, hydrargyri corrosivum chloridum*, gr. $\frac{1}{20}$, *aurii et sodii chloridum*, gr. $\frac{1}{20}$, *ferri iodidum* and *arsenicum*.

For *uræmia*, if patient is conscious, *purgatives, diaphoretics* and *diuretics*. If unconscious, *morphina* hypodermatically or *chloroform* inhalations.

AMYLOID KIDNEY.

Synonyms. Chronic Bright's disease; waxy kidney; lardaceous kidney.

Definition. A peculiar infiltration into, or a degeneration of, the structure of the kidney, from the deposit of an albuminoid material, having a superficial resemblance to starch granules. Similar changes occur in the liver, spleen, intestines, and other organs.

Causes. The chief cause is prolonged suppuration, especially of the bones; coxalgia; syphilis; cancer.

Pathological Anatomy. The kidney is uniformly enlarged. It presents a pale, glistening, translucent appearance, and has a doughy consistency. On section, the surface is homogeneous, anæmic and whitish. The deposit occurs along the renal vessels and in the vascular tufts of the glomeruli, progressing until all parts of the organ are infiltrated. When the organ is thus infiltrated, the proper structure undergoes an atrophic degeneration, the result of pressure.

The reaction with iodine and sulphuric acid affords a certain test of the *amyloid* deposit. Brush over a section of the affected kidney a solution of iodine with iodide of potassium in water, when a mahogany color will be produced, and if diluted sulphuric acid is now added, a violet or bluish tint results. A very pretty reaction is to take a one per cent. solution of anilin violet, which strikes a red or pink color with the amyloid material, while the unaltered tissues are stained blue, making a beautiful contrast.

Similar changes occur in other organs of the body. With the amyloid change may be associated either parenchymatous or interstitial nephritis.

Symptoms. Associated with *wasting* are *œdema* of the lower extremities and *ascites*, with an *increased flow of urine*, pale, watery and of low specific gravity, containing *albumen* and *hyaline casts*, which are transparent. If the amyloid change be associated with other forms of renal change, the urine will show the characteristics of such condition. A profuse, watery and persistent *diarrhœa* adds to the suffering, caused by amyloid changes in the intestinal canal.

Diagnosis. Differs from *parenchymatous nephritis* in its clinical history, and the fact of its always being associated with a suppurating disease.

From *interstitial nephritis*, in its history, character of the urine, *absence* of uræmia, cardiac hypertrophy, changes in the vessels, and the fact of its association with suppurating diseases and similar changes in other organs.

Prognosis. Controlled by the suppurating disease with which it is associated; the termination, when the amyloid change is fully developed, is unfavorable, death occurring within a few months, or under favorable conditions, not for one or more years.

Treatment. Sustaining and symptomatic in character. Generous diet, and the persistent use of *ferrum* and *oleum morrhuæ*.

If caused by syphilis, a thorough course of *potassii iodidum*, *ferri iodidum* and *hydrargyri corrosivum chloridum*, with *oleum morrhuæ*.

PYELITIS.

Synonyms. Suppurative nephritis; pyelo-nephritis.

Definition. An acute catarrhal inflammation of the pelvis of the kidney; the term *pyelo-nephritis* is used when suppurative inflammation is superadded to the catarrhal inflammation. The disease is characterized by lumbar pains, irritability of the bladder, the urine neutral, or alkaline in reaction, and milky in appearance; if *pyelo-nephritis* occur, symptoms of hectic fever and exhaustion are added, the urine containing pus.

Causes. Cold, or exposure; cystitis; obstruction of the ureters by renal calculi; pressure from a tumor.

Pathological Anatomy. The inflammation is *catarrhal;* it is characterized by injection of the mucous membrane of the pelvis of the kidney, with slight extravasations of blood; relaxation and softening, shedding of the epithelium, and the subsequent discharge of mucus and pus. If the morbid condition has existed for some time, the kidneys, one or both, are in a process of suppuration, they are enlarged, deeply congested, except where suppuration is proceeding, where they are of a yellowish-white color—*pyelo-nephritis*. Pus is constantly forming, and, if there be no obstruction, flows away with the urine; should there be an impediment to its escape, pus accumulates in the pelvis of the kidney, causing its distention, giving rise to the condition known as *pyelo-nephrosis*. The pressure caused by the obstruction finally leads to destruction of the entire organ, a mere sac, or *renal cyst* remaining.

Symptoms. If caused by *cystitis*, symptoms of this condition occur first; if from *renal calculi*, its characteristic symptoms precede those of pyelitis.

Begins by *chilliness*, *feverishness*, *lumbar pains* following the course of the ureters, *frequent micturition*, the *urine milky* in appearance when voided, *acid* or *neutral* in reaction, and depositing a copious sediment, whitish or yellowish-white in color, containing only a small amount of albumen, no more than is due to the *pus*.

If *pyelo-nephritis* follow, symptoms of pyæmia supervene, to wit: *fever*, typhoid in character, low, muttering *delirium*, *subsultus tendinum*, *stupor*, decline in strength, and loss of flesh, with perhaps a *tumor* in the lumbar region.

If both kidneys are affected *uræmic* symptoms are frequent.

Diagnosis. From *cystitis*, by history, lumbar pains and *acidity* of purulent urine, the urine in cystitis being always *alkaline*.

Peri-nephritis, a disease of loose tissue, around about the kidneys, terminating in abscess, causing lumbar pain, increased by motion or pressure, hectic fever, sense of fluctuation over kidneys, the *urine remaining normal*.

Prognosis. Simple cases, where no obstruction to flow of pus, *recover* in a week to ten days. If obstruction of the ureter, the prognosis is grave. Suppurative cases unfavorable.

Treatment. Rest in bed. Milk diet. Free use of water to dilute the urine, and free diaphoresis. *Quinina* to keep down temperature, prevent formation of pus, and maintain the powers of life.

To change the character of the secretion, Prof. DaCosta strongly recommends *pix liquida*; other remedies are *oleum santali*, *copaiba*, *eucalyptol*, *terebinthina* and *cubeba*.

If *abscess* results, *aspiration*, *quinina* and *stimulants*.

ACUTE URÆMIA.

Synonyms. Uræmic poisoning; uræmic intoxication; uræmic coma; uræmic convulsions.

Definition. A group of nervous phenomena, which occasionally develop during the course of acute or chronic Bright's disease, and other maladies, the result of the retention or accumulation in the blood of an excrementitious material, supposed to be *urea*; the flow of urine being either normal, lessened or increased.

Causes. Suppression of urine, from acute or chronic Bright's disease; cystic, tubercular or cancerous kidney; the puerperal state; operations on the uterus, bladder, urethra or rectum.

Symptoms. Uræmic intoxication is the result of the failure of the kidneys to perform their normal function of eliminating some one or all of the poisonous elements of the urine.

The toxæmia may develop suddenly, by a *convulsive* seizure followed by *coma*, or slowly and gradually. Usually the attack is pre-

ceded by a decrease in the urinary secretion; although it must be borne in mind that in rare instances, during, or immediately prior to, the appearance of the uræmic phenomena, the normal urinary flow has been largely exceeded.

The onset is usually with *headache, dimness of vision,* dilated, sluggish pupils, *drowsiness, vertigo, deafness,* dusky countenance, *nausea, vomiting,* and either a *chill* followed by *fever,* or a *cool skin* from the onset; the *mind is dull,* deepening into *stupor,* to be followed by *coma,* or *convulsions* precede the coma, which terminates in death, unless the poison causing the attack is rapidly eliminated. If the amount of accumulated urea is small the phenomena may not approach the pronounced coma described, the patient being able to be aroused. When *convulsions* occur they rapidly succeed one another, consciousness seldom being complete between the fits.

Diagnosis. *Cerebral apoplexy* may be mistaken for uræmic coma, or the reverse. The chief points of distinction are, in the latter the attack is usually in patients suffering from dropsy, and that the coma is not sudden in its appearance, but is generally preceded by other nervous phenomena, such as headache, vertigo, dimness of vision, obstinate vomiting, and convulsions. Again, the *uræmic stertor* is a sharp, hissing sound, whilst that of apoplexy is "snoring." Apoplexy is followed by paralysis, uræmic coma is not.

An *epileptic* seizure is preceded by the sharp cry and extreme pallor of the face, the countenance being dusky in uræmic convulsions.

Prognosis. An attack of acute uræmia is always a very grave condition. The prognosis depends upon the amount of retained poison, the length of time it has been retained, and the condition of the organs of elimination.

Treatment. The indications in acute uræmia are: *first,* to arrest the nervous phenomena; *secondly,* to promote elimination. Prof. Loomis has succeeded in meeting both of these indications by hypodermatic injections of *morphina,* gr.⅙–¼–½, repeated, if needed, every two hours. He says, "the most uniform effect of morphine so administered is, first, to arrest muscular spasms; second, to establish profuse diaphoresis; third, to facilitate the action of cathartics and diuretics, especially, the diuretic action of digitalis."

Following the injection of morphina, *diaphoresis* should be promoted by means of the *vapor-bath,* or the *hot wet-pack,* or the hypo-

dermatic use of *pilocarpinæ hydrochloras*, gr. ^{1}–⅙–¼, provided no counter-indication to its use exists.

Diuresis should be promoted by *infusum digitalis*, and *dry* or *wet cupping*, and poultices over the loins.

Catharsis is best produced by *elaterium*, gr. $\frac{1}{12}$–⅛.

RENAL CALCULI.

Synonyms. Nephro-lithiasis; gravel; renal colic.

Definition. *Renal calculi* are concretions formed by the precipitation of certain substances from the urine, around some body or substance acting as a nucleus.

Their presence may not be recognized until one or more attempt to pass along the ureters, when an attack of *renal colic* results; or, by irritation, *pyelitis* is produced; or, more rarely, they are voided by the urine without exciting any symptoms.

By *gravel* is meant very small concretions, which are often passed in the urine in large numbers.

Causes. Occur at all ages; frequent before the fifth year, and from five to fifteen. Males are more liable than females. A special liability seems to exist in some families, but the precise etiology of calculi is not yet determined.

Varieties. 1. *Uric acid*, as calculi and gravel, and especially associated with the gouty diathesis.

2. *Urates*, chiefly urate of ammonia; nearly always in childhood.

3. *Oxalate of lime* or mulberry calculus; characterized by hardness, roughness and very dark color.

4. *Phosphatic calculi* form as frequently in the bladder as in the kidney, and present a chalky or earthy appearance.

5. *Alternating calculi*, consisting of alternate layers of two or more primary deposits.

Anatomical Characters. In structure, a urinary calculus usually consists of a *central nucleus*, surrounded by the *body*, and outside of all there may be a phosphatic *crust*. The nucleus may or may not be of the same material as the rest of the stone, sometimes being a foreign body, mucus or blood.

A section generally shows a *stratified* arrangement, or it may be partly or completely *radiated*.

Symptoms. The clinical signs of renal calculi are those consequent on the results of their presence, to wit: *renal hemorrhage*,

renal congestion, inflammation, terminating in *abscess, pyelitis* or *pyelo-nephritis, cystitis* or *renal colic.*

The symptoms of *renal colic* begin abruptly, by severe, agonizing *pain* in the lumbar region, following the ureters into the corresponding groin and thigh. *Pain* and *retraction* of corresponding testicle, also of glans penis. *Face pale* and *features pinched*, the surface cold and damp. Irritability of the bladder, the urine passed in drops containing some blood. So severe is the pain at times that the patient may faint or pass into unconsciousness or have a general convulsion. If both ureters are obstructed *uræmic symptoms* will arise.

The paroxysm usually terminates suddenly after some minutes or hours, the stone escaping into the bladder.

Prognosis. Renal calculus is attended with many dangers. It may produce extensive disorganization of the kidneys, or its passage along the ureter may prove fatal. If the stone be very large, or if more than one, the prognosis is graver. Calculus is a disease very apt to recur. Renal sand (*gravel*) and small concretions may, after more or less delay, be voided with the urine.

Treatment. An attack of *renal colic* is best relieved by a hypodermatic injection of *morphina* and a warm bath or a suppository of *ext. opii*, gr. j, *ext. belladonnæ alco.*, gr. ss., repeated if needed.

For attacks of *gravel, liquor potassii citratis*, f℥ ss., every three hours, and, if much *vesical irritability*, adding *tinct. opii camph.*, f℥ ss–j.

For *renal hemorrhage*, Prof. Bartholow reports success with

℞. Extracti ergotæ fluidi,
Tincturæ krameriæ.....āā..... ℥ij. M.
Sig.—℥j every two or more hours.

For *uric acid calculi*, as a solvent, Buffalo Lithia Springs Water or the Rockbridge Alum Springs Water of Virginia, or *potassii tartraborates*, "obtained by heating together four parts of cream of tartar, one part of boracic acid, and ten parts of water. A scruple may be given three or four times a day, in water, largely diluted."

For *phosphatic calculi*, as a solvent, *ammonii benzoas*, well diluted and long continued.

CYSTITIS.

Synonym. Catarrh of the bladder.

Definition. An inflammation of the mucous membrane lining the urinary bladder, acute or chronic in its course, and of either a catarrhal, croupous or diphtheritic character; characterized by rigors, moderate fever, hypogastric pain, frequent but scanty micturition and severe vesical tenesmus, the urine containing pus.

Causes. *Acute variety;* long retention of urine; foreign bodies in the bladder; pyelitis; urethritis; blows over the pubes; myelitis and secondary to fevers or diphtheria. *Chronic variety;* following the acute variety; retention the result of enlarged prostate or an urethral stricture; calculi; gout; chronic Bright's disease.

Pathological Anatomy. In *acute catarrhal cystitis*, there first ensues hyperæmia of the mucous membrane of the entire or a portion of the bladder, manifested by redness, swelling and œdema; followed by an increased secretion of the small glands at the base of the bladder, and an increased growth and consequent desquamation of the vesical epithelium, together with a copious generation of young cells; if the hyperæmia be decided, rupture of the capillaries and extravasation of blood occur.

If the inflammation be intense suppuration of the sub-mucous connective tissue may result, and ulceration of the mucous membrane permit the sub-mucous abscesses to empty into the bladder.

If the inflammation be of a croupous or diphtheritic character, the morbid anatomy does not differ from the same variety of inflammations in other mucous membranes.

In *chronic cystitis* "the mucous membrane is thick, blue gray in color, and very tough. Muco-pus and viscid mucus are formed in large quantities upon its surface. The muscular wall of the bladder may sometimes be half an inch thick, and the fasciculi give a ribbed appearance to the internal surface, called the 'columnar bladder.' The hypertrophy of chronic cystitis may be eccentric or concentric. In some cases diverticuli are formed, in whose walls are dilated and tortuous veins. In nearly all cases bacteria are found in abundance." (Loomis.)

Symptoms. *Acute cystitis;* the onset is usually abrupt, by *rigors*, slight *fever*, loss of appetite, sleeplessness, a feeling of depression; *frequent micturition*, but the *urine* is only voided drop by drop,

its passage followed by distressing *vesical tenesmus*, the result of spasm of the bladder; *pain* over the pubis and in the iliac regions, of a dull character, at times becoming sharp and agonizing; *burning along the urethra* adds to the distress of the patient.

The *urine* is cloudy, of an *alkaline* reaction, and at times is *fetid*, the microscope showing *epithelium*, *pus* and *red blood corpuscles*.

Chronic cystitis; the onset is gradual and insidious, and is excited by some obstacle to the evacuation of the urine, such as stricture, the presence of a stone in the bladder, or enlargement of the prostate gland. There are present dull *pain*, *frequent* but *scanty micturition*, the *urine* is *alkaline*, containing large amounts of *muco-pus* or *pus;* on standing, it deposits a thick, glairy, viscid sediment, in which, under the microscope, triple phosphates and large pus corpuscles, extremely regular both in contents and in shape, may be detected.

Although the quantity of urine voided by the patient is small, yet if immediately after micturition the catheter is used, several ounces of *fetid*, *cloudy*, *alkaline urine* may be removed.

Patients with chronic cystitis usually present decided constitutional debility.

Severe local pain, emaciation and occasional bloody urine, indicate ulceration of the vesical mucous membrane.

Diagnosis. *Pyelitis* has lumbar pains following the course of the ureters, frequent micturition without the severe vesical tenesmus; the urine, although cloudy, has an acid or neutral reaction.

Prognosis. The *acute variety* is, as a rule, good, being controlled by the cause.

The *chronic variety* continues for years, and after hypertrophy of the bladder is incurable.

Treatment. Rest is paramount. The diet must be restricted, all highly seasoned articles being particularly interdicted; milk being the most suitable.

Warm applications over the pubic region are of benefit; and leeching and cupping over the bladder are of service.

The urine should be well diluted by large draughts of pure water and particularly the alkaline mineral waters, to wit: Farmville lithia, Buffalo lithia or the Rockbridge alum, or Vichy waters. The following formulæ are of decided benefit:—

℞. Acidi benzoici,
Sodii borat.....āā..... ʒij
Infusi buchu, vel
Infusi uvæ ursæ..... fʒvj. M.
SIG.—Tablespoonful every 2 hours, well diluted.

Or—

℞. Liquor. potassæ..... fʒss
Mucil. acaciæ..... fʒviss. M.
SIG.—Tablespoonful every 4 hours, well diluted.

For the *pain* and *tenesmus* relief is afforded by a suppository of *extractum opii* and *extractum belladonnæ*, repeated as needed.

The *vesical tenesmus* is often benefited by *extractum cannabis indicæ fluidum*, fʒss, every three or four hours.

Chronic cystitis. The bladder should be completely emptied with the catheter several times in the twenty-four hours.

The use of *eucalyptol*, gtt. x-xv, every four hours, well diluted, and washing out the bladder with the following mixture, has been of decided benefit in the hands of the author:—

℞. Sodii borat..... ʒj
Glycerini..... fʒij
Aquæ..... fʒij. M.
SIG.—fʒss–iss added to warm water and injected into the bladder once or twice daily.

The diet should be nutritious, but without spices of any kind. The free use of the alkaline mineral waters is of advantage.

ACUTE GENERAL DISEASES.

PAROTITIS.

Synonym. Mumps.

Definition. An acute specific *infectious* inflammation of one or both parotid glands, with a very strong tendency to migrate into the mamma or testes; characterized by pain, swelling and disordered function of the gland.

Causes. A specific poison. Occurs in epidemics, although isolated cases are seen. Males more liable than females. The most common ages between five years and puberty. As a rule it occurs but once in the same individual.

The *period of incubation* is from two to three weeks.

Pathological Anatomy. There is inflammation of one or both parotid glands, and in severe epidemics the cellular tissue pervading the gland is involved.

The catarrhal inflammation begins in the gland ducts and rapidly extends to the gland proper. There is congestion, swelling and an infiltration of serous fluid, with more or less infiltration of the adjacent tissues. The swelling may suddenly reach an enormous size and as suddenly decline, the gland returning to its normal condition, or, rarely, an abscess results, with partial or complete destruction of the gland. Occasionally the submaxillary gland is involved, also the mammæ and testes.

Metastatic parotitis occurs secondary to severe blood poisoning, as in pyæmia, typhoid or typhus fevers or diphtheria. The usual termination of secondary parotitis is by suppuration and destruction of gland structure.

Symptoms. The onset is rather sudden, by *malaise, chill, fever*, 101°–103° F., *quick pulse, headache, dry skin, scanty urine*, followed within a day or two, by *stiffness* at the angles of the jaw, *swelling* of the *parotid, pain*, increased by moving the jaws, with *general œdema* of the affected side of the face, at times the *skin* being *reddened*. *Salivation* is frequent, and occasionally deafness occurs.

The swelling and other glandular symptoms subside about the sixth or seventh day, to be followed by restoration to health, or what is more common, the involvement of the *opposite gland*.

At any time during the disease *metastasis* to the *mammæ, ovaries* or *testes* is apt to occur, when the symptoms peculiar to such affection will be added. It has been noted that a *continuance* of the *temperature* after the decline of the parotid symptoms has begun, usually is significant of *metastasis*.

Diagnosis. An error seems impossible.

Prognosis. Simple mumps, favorable; the chief danger being from the altered function of the mammæ, ovary or testes after *metastasis*.

Treatment. The disease being self-limited, the indications are entirely symptomatic with attention to the secretions, although *extractum pilocarpi fluidum*, ♏x–xxx repeated, has been used with varying success as a specific.

Locally, warmth to the affected gland may be agreeable.

DIPHTHERIA.

Synonyms. Putrid sore throat; malignant ulcerous sore throat; malignant quinsy; membranous angina.

Definition. An acute, specific, constitutional disease, both *epidemic* and *contagious*, beginning by an affection of the throat, characterized by a local exudation and glandular enlargements; attended with great prostration of the vital powers and albuminuria, and having for its sequelæ various paralyses.

Causes. *A specific poison*, the character of which is unknown. It is preëminently a disease of childhood. It is apt to recur in those who have once been affected. All conditions of bad hygiene increase its virulence and diffusion, although the chief cause of its spread is *contagion*.

The poisons exists in the exudations and secretions of the fauces and in the breath, and floats in the atmosphere at a considerable distance from the original source.

The theory of "No bacteria, no diphtheria," is not proven.

The *period of incubation* is from three to five days.

Pathological Anatomy. The *diphtheritic* inflammation differs from either the *croupous* or *catarrhal* form, in that the exudation is not only *upon*, but also *within*, the substance of the mucous membrane.

At first there is *redness*, which may begin in any part of the throat, associated with *swelling* and an *increased secretion* of viscid mucus. The redness spreads over the entire mucous surface, when the *exudation* makes its appearance. The deposit may commence from one or several points, such as on one tonsil, the soft palate, or the back of the fauces, which, however, speedily extend and coalesce, forming extensive patches, or cover uniformly the entire surface.

The patches are of variable thickness, which is increased by successive layers being formed underneath.

The *color* is usually gray, white or slightly yellow, but may be brownish or blackish, the *consistence* ranging from "cream to wash leather."

On removing the membrane, which is accomplished with more or less difficulty, a raw, bleeding surface is exposed; at times an ulcer, which is speedily covered with a fresh deposit.

If the exudation separate itself, it is either not renewed at all or only in thinner films.

The exudation or membrane, examined by the microscope, is composed of fibrin, pus corpuscles, epithelial granular cells and bacteria.

If the *larynx*, *trachea* or *nasal* mucous membranes participate in the disease, the *croupous* and not the *diphtheritic* form of inflammation occurs.

The *lymphatic glands* of the neck, whose vessels originate in the faucial tissues, are enlarged and inflamed, and contain large numbers of *bacteria*, probably originating as the result of decomposition.

The muscular tissue of the *heart* becomes soft, is easily torn, and its fibrillæ are far advanced in granular degeneration. Ulcerative endocarditis has been frequently observed.

The *kidneys* undergo a granular degeneration in severe attacks.

The *blood* undergoes alteration, being black and fluid.

Symptoms. Following the law of *contagious* diseases, the symptoms vary in intensity in different cases, the prominent symptoms being often disproportionate to the gravity of the attack.

The *invasion* may be *mild*, with *rigors* succeeded by moderate *fever*, *headache*, *languor*, *loss of appetite*, *stiffness of the neck*, *tenderness* about the *angles of the jaw*, or *slight soreness of the throat.*

In other cases the *invasion* is more *abrupt* and *severe*, with *chilliness* followed by great *febrile* reaction, 103° to 105°, F., *pain in the ear*, *aching of the limbs*, *loss of strength*, *painful deglutition* and *swelling of the neck*, compelling the patient to take to bed from the onset.

The *appetite* is poor, the *tongue* slightly coated, sometimes more or less exudation appearing upon it, the *bowels* being either regular or slightly relaxed. The *pulse*, at first full and strong, soon becomes either frequent or slow, but *compressible.* The *urine* is scanty, high colored, and contains *albumen.*

The *local* symptoms in the majority of cases are associated with the throat. The patient complains of a frequent and persistent desire to hawk, in order to clear the throat. On *inspection* the fauces are seen *red* and *swollen*, and more or less covered with the diphtheritic *exudation;* sometimes the *tonsils* and *uvula* are greatly *swollen* and spotted with exudation. In bad cases, more or less *ulceration* or *sloughing* may be observed. Not unfrequently fragments of exudation, the *false membrane*, are expectorated, with particles of the ulcerated tissues, having an *offensive odor*, which is transmitted to the

breath. The *lymphatic glands* of the neck are *enlarged* and *tender*, and in severe cases the tissues of the neck are greatly tumefied.

Extension to the *nasal cavities* causes a *sanious* and *offensive* discharge from the nose, with attacks of *epistaxis*.

Extension to the *larynx* is indicated by *hoarseness* or *complete loss of voice*, *croupy cough* and obstructive *dyspnœa*, which often become urgent, the breathing being *noisy* and *stridulous*, and subject to paroxysmal exacerbations. If the inflammation extend to the *bronchi*, the breathing becomes still more embarrassed.

Duration. Ranges from two to fourteen days, an average being about nine days, although complications and sequelæ may prolong its course.

Relapses are not uncommon.

Sequelæ. Those who recover from a severe attack remain often for weeks with a *pale* and *cachectic* appearance, due to the profound blood alteration.

Paralysis is a common sequelæ, following the mild as often as the severe attacks. Usually not occurring until the patient seems fully convalescent.

Pharyngeal paralysis is the most common, causing difficulty or inability of *deglutition*, fluids regurgitating through the nose.

Cardiac paralysis is not unfrequent, the pulsations descending to 60, 50, 40, and in a case seen by the author, to 20 per minute.

Diphtheritic paralysis may affect the motor muscles of the eye, causing *strabismus;* the muscles of one side, *hemiplegia;* of the legs, *paraplegia;* and of the bladder, leading to *retention of urine*, or difficulty in passing it.

Sensation is also *diminished* in the paralyzed parts.

Diagnosis. From *follicular ulceration of the tonsils*, which is frequently termed diphtheria, by the slight or absent systemic symptoms, the ulcerated condition being limited to the tonsils, often but one, and the absence of glandular enlargement and following palsies.

From *pharyngitis*, by the absence of exudation and loss of faucial tissue, and constitutional symptoms.

From *scarlatina*, by the presence of the eruption and the absence of membrane in the fauces.

From *membranous croup*, by the difference in the constitutional symptoms; croup appears sporadically and is not contagious, diphtheria being highly contagious and frequently occurs in epidemics;

in diphtheria of the larynx, the depression is clearly that of blood poisoning, while in croup, the depression is in proportion to the mechanical obstruction of the respiration, by the membranous exudation. The pathology of croup is simple and easy of investigation; diphtheria is obscure in its etiology and progress. The temperature record of croup is a high one until carbonic acid poisoning is imminent from the mechanical obstruction of respiration, while in diphtheria, the tendency to a decline in the temperature after the second day is nearly characteristic, regardless of the amount of laryngeal obstruction. In croup the pharynx contains no membrane, and is but slightly, if at all, inflamed, and associated trouble in the nose is of the rarest occurrence, the very reverse obtaining in diphtheria. In croup the laryngeal symptoms are from the onset, while in laryngeal diphtheria, the pharyngeal symptoms almost always precede. In croup glandular involvement is a clinical novelty, as are subsequent palsies, while glandular involvement and various palsies are the rule in diphtheria.

Prognosis. Always grave, but more so in children than in adults. Its gravity, in the majority of cases, is proportionate to the local symptoms. The average mortality is about *ten per cent.*

Favorable indications are, moderate fever, strength slightly impaired, a good constitution, and moderate exudation.

Unfavorable indications are, great depression, spreading exudation, great swelling of the cervical glands, large amount of albumen, extension to larynx and nasal mucous membranes, hemorrhages from the fauces and nose, and an epidemic character.

Treatment. *No specific.* It is a disease of debility. The blood being more or less altered, it follows that *sustaining* measures must be resorted to in *all cases.*

The *diet* must be of the most nutritious character from the onset, such as milk, eggs, broths and oysters, at *intervals* of every *two or three hours.* If deglutition be too painful, resort must be had to nutritious *enemata,* the following formula being suitable:—

℞. Milk ..... f℥j
Spts. frumenti ..... f℥iv
Egg ..... One. M.
Sig.—Little salt added, beaten up and warmed.

Stimulants must be used boldly from the onset, guiding the dose by

the effect; usually, a child of two years requires from *thirty* to *sixty minims* of *spiritus vini gallici* or *spiritus frumenti*, every two or three hours; an adult, from *two* to *four drachms* every three hours.

Ferrum and *potassii chloras*, in *full doses*, frequently repeated, have seemed, when begun early in the attack, to modify the course of the malady, and they have the additional advantage of acting locally upon the throat as they are swallowed. A good formula is—

℞. Tinct. ferri chlor..... gtt. v–x–xx
Potassii chlor..... gr. iij–v
Glycerini..... ♏ xv
Syr. zingib.....ad ..... f℥j–ij. M.

Sig.—In water every three hours, for a child of two or three years.

The efficacy of the above is greatly enhanced, in the author's experience, by the addition to each dose of *tinctura belladonnæ*, gtt. j–v.

Quinina, gr. xvj–xxiv per day for a young adult, and gr. v–x for a child, should be used throughout the disease; if irritability of the stomach prevent its administration by the mouth, it can be used as a *suppository* or locally in the form of the *oleate*.

Calomel in small doses, combined with *sodii bicarbonas* every hour until the *breath becomes fetid*, is beneficial, and especially in cases showing a tendency to spread toward the larynx. Indeed, a *tolerance* to calomel seems to exist in *diphtheria of the larynx*.

Hydrarg. chlor. corros., gr. $\frac{1}{8}$–$\frac{1}{24}$, repeated every second or third hour, also acts well in many cases, combined as follows:—

℞. Hydrargyri chlorid. corrosiv..... gr. $\frac{1}{48}$
Tinct. ferri chlorid..... ♏v–x
Glycerini..... ♏x
Aquæ.....ad..... ℥j. M.

Sig.—One teaspoonful every hour or two, well diluted.

Locally. *Cleanliness* of the fauces is of the utmost importance, and if a *non-irritating disinfectant* be added, its value is enhanced. Prof. Bartholow "has seen excellent results from the frequent application of a solution of *acidum lacticum*, strong enough to taste sour, by means of a mop." The following, used as a *gargle*, or applied by a mop, is useful:—

℞. Acid. salicyl..... gr. xx
Glycerini..... f℥j
Aquæ destil..... f℥iij. M.

Or—

℞. Potass. chloras..... ℥iv
Acid. carbol..... gr. ij–iv
Tinct. myrrh..... ℥j
Inf. cinchonæ..... ℥ij. M.

Or—

℞. Ext. pancreatis..... ℥j
Sodii bicarb..... ℥iij. M.

Sig.—Add ℥j to aquæ ℥vj, and apply with camel's-hair pencil.

Inhalations of steam and hot water, and allowing the patient to suck pellets of ice, give relief. Sponges dipped in hot water and applied to the angles of the jaw are beneficial.

For *laryngeal diphtheria* the same general treatment, especially the *mercurial*, with *inhalations* of lime by slaking freshly burned lime in a vessel and directing the vapor to the child by a newspaper, or some similar contrivance, or using three parts of *liquor calcis* and one part of *glycerin*, in an *atomizer*, every half hour or hour, or *liq. trypsin*, as a spray. If these means fail, resort must be had to *tracheotomy*, which has succeeded in many desperate cases.

For *nasal diphtheria* the same general treatment, and syringing the nose every two or three hours with a weak solution *potassii chloras*, or *acidum carbolicum*, or the following:—

℞. Sodii sulphit..... ℥iij
Glycerini..... f℥ij
Aquæ..... f℥iv. M.

For *the paralysis*, *strychnina* and *ferrum* internally, or *strychnina* hypodermatically, with the *galvanic current* locally.

ACUTE ARTICULAR RHEUMATISM.

Synonyms. Rheumatic fever; inflammatory rheumatism.

Definition. A constitutional disease, characterized by fever, inflammation in and around the joints, occurring in succession, and a great tendency to inflammation of either the endocardium or pericardium.

Causes. The *predisposing* causes are inherited tendency, scarlatina, and the puerperal state.

The *exciting* causes, exposure to cold and chilling of the body. Rheumatism rarely occurs before seven or after fifty years. The *liability* to the disease is increased by having had an attack.

Pathological Anatomy. The *blood* contains an excess of *lactic acid*. The *joints* bear the brunt of the attack; the synovial membrane is reddened, the vascularity of the synovial fringes is increased, so with the synovial fluid, which is thinner, of a reddish color, containing some gelatinous coagula of fibrin, and under the microscope nucleated cells, ordinary pus cells being rarely seen.

The swelling visible about the affected part depends mostly on inflammatory œdema of the connective tissue around the joint.

The *pain* is probably due, in all cases, to stretching of and pressure on the elements of the tissue by the dilated capillaries and the inflammatory œdema. For the changes which ensue when the endo- and peri-cardium are attacked, the reader is referred to the sections on those diseases.

Symptoms. Begins suddenly, generally at night, with a *chill* or chilliness, *pain* and *stiffness in the joints*, loss of appetite, at times, nausea and vomiting, followed by *fever*, the temperature soon reaching 102°, F., to 104°, in rare cases 108° to 110° (*the hyperpyrexia*), the *pulse* seldom exceeding 95, *great thirst, profuse acid sweats*, scanty, *high colored, acid urine*, at times showing traces of albumen, the *bowels constipated*. The *fever* continues throughout the attack, showing marked remissions. Delirium is absent, except the *hyperpyrexia* occur. *Sleep* is prevented by the *pain* and the profuse *perspirations*. The strength is moderately well preserved.

The *skin* is often covered with an eruption of *miliaria rubra, red papulæ* and *miliaria alba*, the result of irritation at the orifices of the perspiratory glands, from the excessive sweating.

The *local* phenomena are *pain, tenderness, increased heat, swelling* and *redness* of one or more joints; if but one joint, it is termed *monoarthritis*, if more than one, *polyarthritis*. *Pain* is aggravated by *motion* and *pressure*. *Swelling* is most apparent in those joints not covered with muscle, to wit: knee, wrist, elbow, ankle, and the hands and feet, and is proportionate to the acuteness of the attack. The inflammation may abruptly cease at one or more joints, and as suddenly attack others.

The disease is extremely irregular as regards the number of joints affected, although the local manifestations are controlled by an important pathological law, to wit: *the law of parallelism*. Corresponding joints are often affected together, and when not, the different affected joints are either on one side of the body, or those on both

sides which are analogous, as, the knee, elbow, wrist, ankle, hip and shoulder, are attacked together.

Complications. Pericarditis, endocarditis, myocarditis, cerebral endarteritis, bronchitis, pneumonitis and pleuritis.

Duration. The duration of acute rheumatism is governed entirely by the presence or absence of complications. Uncomplicated cases recover in from *thirteen* to *twenty-one* days, although they may be prolonged to five or six weeks. Relapses are frequent.

Diagnosis. A typical case cannot be mistaken for any other disease, but cases running a *subacute* course may be mistaken for acute rheumatoid arthritis, gonorrheal rheumatism, or pyæmia.

Acute rheumatoid arthritis attacks one joint at a time and becomes permanent, has slight if any fever, no sweats or cardiac lesions.

Gonorrhœal rheumatism is associated with a gleety discharge, attacks either the ankle or wrist only, is slowly influenced by treatment, and lacks the febrile phenomena.

Pyæmia is usually manifested at a single joint at the time, and is followed by suppuration and all the symptoms of hectic fever.

Prognosis. Recovery is the rule in uncomplicated cases, the mortality being about three per cent. When death occurs it usually depends upon hyperpyrexia, cardiac complication, or cerebral endarteritis.

Treatment. Owing to our imperfect knowledge of the exact nature of this most painful disease, its treatment still remains either empirical or is directed toward certain prominent symptoms or complications of the disease. Garrod claims that "colored water" is about as potent as anything else, for it is, he says, a "self-limited disease," sometimes running a long and sometimes a short course. Rest in bed, whether the pain forces it or not, is imperative. *Warmth* is as imperative, for which purpose the patient should be kept in *blankets*—no sheets—and wear woolen garments. The *diet* must be easily digested food, milk being the most suitable.

Strong and vigorous patients do well with *acidum salicylicum* or the *salicylates* in large and frequently repeated doses, to wit:—

℞. Acidi salicylici..... gr. xx
Liq. ammonii acetat..... ʒiss
Spts. ætheris. nitrosi..... ♏xx
Syr. simplicis..... ♏xv.

Every three hours, well diluted.

Or—

℞. Sodii salicylici .... gr. xx
Tinct. lavandulæ comp..... ♏xv
Glycerini..... ʒss
Aquæ..... .....ad..... fʒss.
Every three hours, well diluted.

If benefit follows, the evidence is quickly afforded in the relief of pain and the decline of the temperature and swelling. If, therefore, after three or four days' use of the salicylates or acidum salicylicum, as above recommended, signs of improvement are wanting, the treatment had better be changed for the *alkaline* treatment, which consists in the administration of *an ounce and a half* of the alkaline carbonates, either alone or with a vegetable acid, each twenty-four hours, until the *urine becomes neutral* or *alkaline*, when the quantity is reduced to an amount sufficient to maintain alkaline urine, to wit:—

℞. Potassii bicarbonatis..... ʒij
Acid tartaric..... gr. xxx.
Dissolved in a glass of water and drank effervescing, every three hours.

Or—

℞. Potass. bicarb..... ʒij
Succi limonis..... fʒiv
Aquæ cinnamomi.....ad..... fʒss. M.
SIG.—In water, every three hours.

After the more *acute* symptoms are passed, change either of the above for *tinct. ferri chlor.*, gtt. xx every four hours, well diluted.

Pale, feeble and anæmic patients, or attacks following scarlatina, are most favorably influenced with

℞. Tinct. ferri chlor..... gtt. xx–xxx
Syr. limonis..... ..... gtt. xx
Aquæ..... fʒj. M.
SIG.—Every four hours, in glass of water.

Or—

℞. Sodii salicylici..... ʒiv
Tinct. ferri chlor..... fʒiiss
Liq. ammonii citrat..... fʒj
Olei gaultheriæ..... ..... ♏xxxij
Glycerini..... fʒiss
Aquæ .....q. s.....ad..... fʒiv. M.
SIG.—Half tablespoonful every three hours, with water.

Prof. DaCosta reports a lessened proportion of *cardiac complications* with *ammonii bromidum*, gr. xv–xx, every four hours.

Subacute attacks and lingering cases are favorably influenced by

℞. Lithii salicylatis..... gr. xv–xx
Syr. zingiberis..... f℥j
Aq. lauro-cerasi..... f℥j. M.

Every four hours.

Whichever plan, acidum salicylicum, salicylates, alkaline or ferrum, is adopted, *quininum*, gr. xij–xx, per day should also be used.

Pain and *restlessness* should be controlled by *opium* in some form, in full doses, or *atropina*, gr. $\frac{1}{80}$, hypodermatically.

For the *hyperpyrexia*, *quinina*, gr. xxx–lx repeated p. r. n., with the *cold bath* or *wet pack*.

Locally, the affected joints should be wrapped in cotton-wool or flannel, saturated with a solution of *tinct. opii*, one part, and *liq. plumb. subacetat. dil.*, two parts, or—

℞. Sodii bicarbonatis..... ℥ij
Tinct. opii..... f℥ss
Aquæ bul..... Oij. M.

Dr. Bartholow finds the application of *blisters* an effective method. He says, "I have small blisters, the size of a silver dollar, placed around the joint, leaving an interval between for succeeding applications. It is by no means so painful and disagreeable as it appears at first sight. The blisters remarkably relieve the pain, bring about a more alkaline condition of the blood, and render the urine less acid, or bring it to neutral, or even to alkaline."

The complications are to be treated according to their character.

MUSCULAR RHEUMATISM.

Synonyms. According to location, to wit: cephalodynia; lumbago; torticollis; pleurodynia.

Definition. An affection of the voluntary muscles, inflammatory in character, either *acute* or *chronic;* characterized by pain, tenderness, and stiffness of the affected muscles. It is never complicated with cardiac disease.

Cause. A disease of adult life. One attack predisposes to another. Almost always due to cold and damp, or direct draught of cold air. Gout increases the tendency to attacks.

Pathological Anatomy. The true nature of muscular rheumatism is not yet determined. Virchow suggests a "hyperæmia of, and scanty serous exudation between, the muscular striæ, and in chronic cases inflammatory proliferation of the connective tissue."

Symptoms. The *first* attack is generally *acute*. Onset rather sudden, with *pain* in the affected muscles, with slight *tenderness*, and considerable *stiffness*, and *difficulty of movement*, by which also the pain is increased.

The suffering may be severe and constant, or only on motion. *Spasm* of the affected muscles may occur. *Objective* symptoms are wanting, except it is evident that the patient keeps the affected muscles as quiet as possible. Fever is absent. The pain may prevent sleep.

Duration, *acute* form, about one week. *Chronic* returns frequently, and finally becomes constant and aggravated when the weather is damp.

Varieties. It may affect any or all of the voluntary muscles, but its most frequent and important varieties are:—

1. *Cephalodynia*. Situated in the occipito-frontal muscle. Distinguished from *neuralgia* of the trifacial, or occipital nerve, by pain on both sides of the head, excited or aggravated by movements of the muscle, and by absence of disseminated points of tenderness.

The muscles of the eye may be affected, and movements of that organ excite pain. If the temporal and masseter muscles are attacked, mastication excites pain.

2. *Torticollis*. Wry neck, or stiff neck. Situated in the sterno-mastoid muscles. Generally limited to one side of the neck, toward which side the head is twisted, great pain being excited on attempting to turn to the opposite side. Rheumatism of the muscles of the back of the neck, *cervicodynia*, may be mistaken for occipital neuralgia.

3. *Pleurodynia*. Situated in the thoracic muscles, and may be mistaken for pleuritis, or intercostal neuralgia, from which it is differentiated by the absence of the diagnostic features of each. Pain is excited by forced breathing, coughing and sneezing.

4. *Lumbodynia* or *lumbago*. Situated in the mass of muscles and fasciæ which occupy the lumbar region. Most common variety. Usually affects both sides. It may set in rapidly and become very severe. Motion of any kind aggravates the pain, often becoming very sharp or stabbing in character. It is sometimes complicated with *acute sciatica*, when the suffering is agonizing.

Diagnosis. The different varieties may be mistaken for any of the following ailments, to wit: trifacial, occipital or intercostal neuralgia, pains of progressive muscular atrophy, syphilis, metallic poisons, or painful affections of the loins, arising from calculi or gravel in the kidney.

A careful examination of the history is usually sufficient to arrive at a correct diagnosis.

Prognosis. Difficult to eradicate, and in chronic cases to ameliorate; but is not dangerous to life. Death never results.

Treatment. *Rest* is the first indication. This is accomplished in *pleurodynia* by firmly strapping the affected side with broad strips of plaster, extending from mid-spine to mid-sterum.

The *local* application to the affected muscles of *hot* poultices, made of two-thirds *pilocarpus* leaves, and one-third *flaxseed* meal, changing them every two hours, is, in the opinion of the author, the most rapidly successful treatment in acute cases.

Internally, *sodii salicylat.*, gr. xv–xx, every two or three hours, is of use in many cases.

For the *pain*, and consequent sleeplessness, use—

℞. Pulv. ipecac et opii..... gr. x
Potass nitras..... gr. v–x. M.
Sig.—In powder, morning and night.

Or, hypodermatically, at the seat of pain, *morphina*, gr. ⅛–¼, and *atropina*, gr. $\frac{1}{80}$, p. r. n.

Chronic cases: Rest, flannel worn next to the skin, stimulating and anodyne liniment, mild galvanism, dry heat, as ironing over the affected part with a common flat-iron, a piece of paper, or towel, being placed next to the skin.

Internally, *potassii iodidum*, *ammonii murias*, *sulphur*, *guaiacum* or *arsenicum*, variously combined.

RHEUMATOID ARTHRITIS.

Synonyms. Arthrititis deformans; rheumatic gout.

Definition. An inflammation of the joints, accompanied with but slight fever, without suppuration, progressive in character, causing nearly symmetrical enlargement and deformity of various articulations.

Causes. More common in females than in males, and in the weak and anæmic. Among the causes are bad hygiene, exposure,

prolonged lactation, frequent pregnancies, menopause, grief, tubercular diathesis, and following attacks of articular rheumatism.

Pathological Anatomy. It is not rheumatism, as the blood contains no *lactic acid*. It is not gout, as *uric acid* is not found in the blood nor *urate of sodium* in the joints.

At first rheumatoid arthritis is attended with hyperæmia of the affected synovial membrane and increase of the synovial fluid. Soon the capsular ligament becomes irregularly thickened, the synovial fluid decreasing. If the process continue, the internal ligament is destroyed, thus allowing dislocations to occur. The inter-articular fibro-cartilages ulcerate and disappear, as does the cartilages covering the ends of the bones, the ends of the bones becoming smooth and eburnated, and often greatly enlarged.

Symptoms. Either *acute* or *chronic*, the latter most common.

Acute form involves several joints at the same time, and is attended with slight pyrexia.

Chronic form slowly involves one joint, which seemingly soon recovers, and is attacked again, and may never recover, but grow progressively worse.

The *joint* slowly *enlarges*, is *painful*, movement exciting *neuralgic pains* along the limb. Soon the articulation becomes *rigid* or slightly movable after prolonged attempts. Redness and tenderness are wanting. *Crepitation* is distinct after ulceration has destroyed the cartilages.

The hands are first involved, the disease spreading symmetrically from articulation to articulation, until in severe cases every joint is deformed.

Diagnosis. *Chronic articular rheumatism* is often confounded with rheumatoid arthritis; but the former lacks the marked structural changes and the progressive involvement of joint after joint.

Gout differs from rheumatoid arthritis by the presence of deposits of urate of sodium in the joints, the ears, tips of fingers and the bursæ over the olecranon process of the elbow, the presence of uric acid in the blood, and the decided history of acute paroxysms.

Gonorrhœal rheumatism, so-called, has symptoms akin to rheumatoid arthritis, but the history of urethral suppuration clears up the diagnosis.

Paralysis agitans, when pronounced, might be confounded with rheumatoid arthritis, if the examination were limited to the joints,

but the whole history, such as the tremor, the gait, etc., should prevent error.

Prognosis. If early treatment be instituted, the disease may be held in abeyance for several years. After pronounced structural changes have begun, the malady is incurable, although it may remain stationary for a long time.

Treatment. If treatment be instituted before serious structural lesions have occurred, the author has seen benefit in many cases by the following treatment: *Oleum morrhuæ* carefully and thoroughly rubbed into the affected joints, three times a day, with the internal use of *lithii citras effervescentes* ʒj, three times a day, and the following *tonic* mixture:—

℞. Massæ ferri carbonat..... gr. v
Liquor. potass. arsenit..... ♏v
Vini xerici..... ʒj
Aquæ..... ʒj. M.
After meals, well diluted.

Sodii salicylicum is recommended early in the disease.

Attention to diet and hygiene are also necessary. When structural changes have destroyed portions of the joint, palliative treatment is the only indication.

GOUT.

Synonyms. Podagra, gout in the foot; chiragra, the hand; gonagra, the knee.

Definition. A constitutional disease, usually inherited; characterized by the sudden occurrence of a paroxysm of severe pain and swelling in one of the smaller joints—the great toe usually—with the presence of uric acid in the blood, and the deposit of the urate of sodium in the structure of the joint.

Causes. *Predisposing;* inherited; male more than female—women after menopause.

Exciting. Malt and wine drinking, whether male or female; large consumption of animal food; lead poisoning; winter season.

When inherited tendency, may begin early in life; when acquired tendency, after thirty-five years.

The pathological cause consists in the presence of an excess of *uric acid* in the blood, in the form of *urate of sodium.*

Pathological Anatomy. Gout is characterized by the deposit of *urate of sodium* from the blood into the structure of joints and tissues that are not very vascular. The deposit is associated with signs of inflammation, to wit: hyperæmia, redness of the surface, with swelling and effusion in and around the affected joint. The surfaces of the joint are incrusted with chalk-like masses, consisting of urates, which become greater with each attack, finally causing great deformity.

The deposit usually begins in the metatarso-phalangeal joint of the great toe, but other and many joints are soon affected.

The deposits may also be found in the knuckles, eyelids, and cartilages of the ear.

"Crystals of urate of soda are deposited in the tubules and intratubular tissues" of the kidneys—"gouty kidney"—and may be seen by the naked eye, the kidneys becoming small, granular and fibrous.

Hypertrophy of the left ventricle and of the arteries, ending in atheromatous changes, are results of gout.

Symptoms. *Acute Gout.* Occurs in paroxysms; one year's interval between the first and second attack; six months usually between the second and third, after which may occur at any time.

Prodromes usually precede the paroxysm for several days, to wit: acid dyspepsia, constipation, headache and lassitude.

The *paroxysm* begins suddenly, between midnight and 2 A. M., with acute *pain* in the ball of the great toe, which becomes *red*, *hot*, *swollen*, and *so sensitive* that the slightest touch cannot be borne.

The veins are filled, the foot, ankle and leg swollen, and the limb the seat of sudden spasmodic contractions, which increase the suffering. Slight relief is afforded by elevating the limb. Associated with the local symptoms are, *chill*, *fever*, quickened *pulse*, *thirst*, *coated tongue*, *constipation*, and *scanty*, *acid*, high-colored *urine*, which deposits, on cooling, a heavy *brick-dust* sediment.

Towards daylight the symptoms ameliorate, to return again at sundown, the severity gradually lessening, until the fourth or fifth day, when convalescence is established, the patient, as a rule, feeling better than before the attack.

Chronic Gout. Either the result of acute attacks or with a greater number of joints being attacked.

The *paroxysms* occur at any time, but develop slowly, with less pronounced local and general symptoms. Deposits are noticed, the

joints becoming hard, knobby, and often distorted. The deposits or *chalk-stones* (urate of sodium) occur about the joints, tendons and bursæ, and helix of the ear.

Diagnosis. An error cannot occur if the history of the case can be obtained, to wit: hereditary tendency, age, sex (females rare, until menopause), mode of living, character of symptoms and presence of the characteristic deposits.

Prognosis. Acute gout rarely fatal; is prone to return, but much depending upon the mode of living.

Chronic gout decidedly shortens life. The most serious signs are those indicating advanced renal disease, with non-elimination of uric acid. Gout influences unfavorably the prognosis from acute diseases or injuries.

Treatment. For the *acute paroxysms* at once, *vinum colchici radicis*, gtt. xv–xx–xxx, every two hours, *well diluted*, either alone or in combination with a *potassa* salt, or *sodii salycilas*, gr. xx, every three or four hours, well diluted, or Prof. Bartholow's pill,

℞. Colchicinæ..... gr. $\frac{1}{10}$
Ext. colocynth. comp..... gr. ss
Quininæ sulph..... gr. iij.
Every two or four hours.

Or the following, recommended by Loomis:—

℞. Pulv. ipecac..... gr. j
Ext. colchici acet..... gr. j
Hydrargyri chlor. mite..... gr. j
Ext. aloes aq..... gr. j
Ext. nucis vomicæ..... gr. ¼. M.
Ft. pil. No. 1.
SIG.—Every three hours.

For the *pain*, hypodermatic injection of *morphina*, and wrapping the inflamed joint in cotton wool saturated with *liq. plumb. sub-acetat. dil.* and *tinctura opii.*

The diet must be restricted to liquid food.

For *chronic gout*, regulated diet, free action on the secretions, and *lithii citras effervescentes*, ʒj, three or four times a day, well diluted with water; and perhaps a course of *quinina, ferrum* and *arsenicum.*

To prevent paroxysm, keep secretions acting, by the free use of pure water or a good alkaline water, especially the Saratoga Vichy.

The diet is of the greatest importance, and should consist chiefly of vegetables and fruit, excepting tomatoes and strawberries; fresh meat may be used once a day, as may oysters, fish and soups. Alcoholic and malt liquors are contraindicated, as are tea and coffee; skimmed milk should replace all the above. No eggs or dishes containing eggs, no pastry, hot bread or cakes, no sweetmeats, spices or condiments.

Systematic exercise, especially walking, is of great advantage.

Cold bathing, with caution, while the vapor or Turkish bath are of benefit.

Changing from a cold to a warm climate in winter, and the use of flannel under clothing, are strongly recommended.

LITHÆMIA.

Synonyms. Lithiasis; uric acid diathesis; half gout.

Definition. A condition in which the fluids of the body are saturated with nitrogenized waste, in the form of *lithic* or *uric acid;* characterized by marked dyspepsia, various nervous phenomena, muscular and articular pains, bronchial catarrh, all or any of these associated with scanty, high-colored, acid urine.

Causes. High living, with little exercise; imperfect digestion of nitrogenized food; impaired elimination of uric acid.

Symptoms. Those of *dyspepsia* associated with *irregular bowels*, scanty, high-colored, *acid urine*, sp. gr. 1.024–1.028 containing neither sugar nor albumen, but showing an *increased* proportion of *urates*. Also, *depressed spirits, impaired memory, loss of interest in occupation, sleepless nights*, attacks of *vertigo*, neuralgic *pains* in the head, and a constant dread of apoplexy or cerebral disease. Also, *pains in the joints*, neuralgic in character.

If the condition be allowed to continue, the following organic changes may result, to wit: fatty heart; fibroid kidney; enlarged liver, or changes in the cerebral vessels.

Diagnosis. From gout, by the absence of acute paroxysms and resulting changes in the joints.

Prognosis. If properly recognized and treated, complete recovery will result, although it is a disorder of long duration.

If not properly treated, develops some one of the organic diseases mentioned.

Treatment. Regulate diet, using fresh meat once daily, poultry, game (plainly cooked), fresh fish, oysters, occasionally eggs, lettuce, spinach, celery, cold slaw and tomatoes; avoid all stimulants, tea and coffee, using milk, skimmed milk or milk and cream. Act freely on all the secretions. Systematic exercise. Avoid tonics, bromides, chloral and opium. Long course of alkaline waters. Good results follow *lithii citras*, gr. xx, t. d., *sodii phosph.*, gr. xxx, ter die, or *acidum benzoicum*, gr. x, t. d., all well diluted with water. The author strongly urges the use of *acidum nitricum dilutum*, gtt. x, in half a glass of water, four times a day, with the occasional use of *pilulæ rhei compositæ* at bedtime.

DIABETES MELLITUS.

Synonyms. Glycosuria; melituria

Definition. A chronic affection characterized by the constant presence of grape-sugar in the urine, an excessive urinary discharge, and the progressive loss of flesh and strength.

Causes. Most common in males. Occurs at all ages, but most frequently between twenty-five and fifty years. It is often hereditary. Disorders of the nervous, hepatic and renal systems. Excessive use of farinaceous food and malt liquors. Sexual excesses.

The exact *pathology* of diabetes mellitus differs in different cases, and in the present state of our knowledge no exclusive view can be adopted. Still, there are reasons for believing that, in a large proportion of cases, the nervous system is primarily at fault, though the character of the lesions may differ.

Pathological Anatomy. None peculiar to diabetes are yet recognized.

Hyperæmia and hypertrophy of the liver and kidneys are generally present, the result of increased functional activity.

The changes in the lungs peculiar to phthisis are often found in very chronic cases.

The changes in the nervous system are not fully determined.

Symptoms. Clinically cases differ greatly in their course and severity; one class presenting slight symptoms and a chronic course; another class having marked local and constitutional symptoms and an acute course. The symptoms of a typical case may be arranged under the following heads:—

Urinary Organs and Urine. Micturition more frequent and the *urine increased* in quantity. *Pain* over the region of the kidneys. The *quantity of urine* may amount to 4, 8, 12, 20 or 30 pints in twenty-four hours. It is usually *pale*, *clear* and *watery*, having a *sweetish taste* and *odor*, the *specific gravity* ranging from 1.025 to 1.050. It ferments rapidly if kept in a warm place. It yields *grape sugar* to the usual tests, the amount present varying from *an ounce to two pounds* in the twenty-four hours.

The urea and uric acid are increased. Albumen may be present.

The increased passage of a large quantity of saccharine urine causes a constant itching, burning and uneasy sensation at the prepuce, along the urethra, and at the neck of the bladder; in females, itching and eczema of the vulva are common; in children, incontinence of urine is frequent.

Digestive Organs. An almost constant symptom is *thirst*, with a dry and parched condition of the mouth. At times the *appetite is excessive*, again absent. The breath may have a sweetish odor, the *tongue* irritable, red, and often cracked. *Dyspeptic symptoms* are common, and occasionally vomiting. The *bowels* are constipated, the stools pale and dry. At times diarrhœa may occur.

The patient complains of feeling *very weak*, languid, and of *soreness and pain in the limbs*, there is more or less *emaciation*, a harsh dry *skin*, the *countenance distressed and worn.*

The mind is often greatly altered; depression of spirits, decline in firmness of character and moral tone, with irritability, are present. Sexual inclination and power are diminished. Defects of vision are present.

The blood and various secretions contain sugar.

Complications. Pulmonary phthisis; Bright's disease; defects of vision from atrophy of the retina or the formation of a soft cataract; boils and carbuncles, and chronic skin affections, such as psoriasis, etc.

Course. The clinical history varies in different cases. In the majority of cases the course is chronic, lasting for years, the symptoms beginning insidiously, and becoming progressively worse, with, at times, decided remissions. Occasionally the disease runs an acute course, death occurring within four or five weeks.

Termination. The majority of cases ultimately prove fatal, the symptoms markedly changing, the *urine* and *sugar diminishing* in

quantity, the occurrence of *albuminuria, disgust for food and drink*, and the development of hectic fever or colliquative diarrhœa.

The fatal result usually arises from *gradual exhaustion*, from blood poisoning, leading to *stupor, ending in complete coma*, or occasionally to *delirium* or *convulsions*, or from complications.

Rarely, death occurs suddenly, from *uræmic convulsions* or *uræmic coma*.

Diagnosis. Diabetes mellitus only exists when *grape sugar* is permanently present in the urine. "It is not the quantity, but the persistence of sugar which constitutes diabetes."

When are present grape sugar in the urine, with more or less increase in the urinary flow, it can be mistaken for no other affection.

From *Bright's diseases*, by the absence of dropsy, and of tube casts in the urine; the amount of albumen in the urine is never so great or constant in diabetes mellitus as in Bright's diseases.

From *diabetes insipidus*, by the absence of sugar in the blood and urine, and the larger quantity of urine voided in polyuria.

Simple glycosuria differs from diabetic glycosuria in that the amount of sugar in the urine is not constant—at one time being present, at another absent—the amount of urine voided is never in excess of health; simple glycosuria is a disease of the aged; diabetic glycosuria usually appears under fifty years. Simple glycosuria often results from the inhalation of chloroform, the use of chloral, in the insane, from excitement, or the result of injuries to the head.

Prognosis. Most unfavorable, as regards a cure, it being fairly questionable if complete recovery has ever occurred in a typical case. Still, decided amelioration may take place in the symptoms, and the progress of the malady be greatly retarded. The younger the patient, the more rapid the fatal termination.

Treatment. Impress upon patients the importance of a strictly *regulated diet*. Prohibit or restrict the consumption of such articles as contain *sugar* or *starch*, especially ordinary bread or flour, sugar, honey, potatoes, peas, beans, rice, arrowroot, etc.

The main diet should be of *animal food*, including meat, poultry, game and fish.

A moderate amount of fluids should be allowed, and in a majority of cases *milk* will prove beneficial, although, theoretically, contraindicated. Tea, coffee and cocoa, without sugar, may be allowed in moderation, glycerin being used as a substitute for the sugar.

Regulated exercise is of importance. The patient should wear flannel, and have two or three warm baths every week, or an occasional Turkish bath.

Therapeutical Treatment. *Opium* exercises an influence over the excretion of sugar, but the effect is not maintained. Pavy strongly urges the use of *codeia* in doses of gr. ½–iij, three times a day. Prof. DaCosta suggests the use of *ergota*, which has decreased the urinary discharge and the quantity of sugar in a number of cases. Prof. Bartholow has met with an apparent cure by *ammonii carbonas*. The author has met with decided partial success with *uranii nitras*, gr. j–iij, three times a day, the cases not yet being under observation a sufficient length of time to pronounce them cured, although in two the urine has been diminished from three quarts per day to normal, the quantity of sugar from nine ounces to less than half an ounce, in the twenty-four hours.

Potassii bromidum, ʒj during the twenty-four hours, is strongly urged. The following remedies are recommended by different observers, to wit: *pepsinum*, *liquor potassii arsenitis*, *iodum*, *potassii iodid.*, *sodium salicylas*, *acidum lacticum*, *glycerinum*, *quinina*, *tinctura cannabis indica*, etc. The evidence in favor of the majority of these drugs is far from satisfactory.

Symptomatic treatment is mostly called for. For emaciation and anæmia, *ferrum* and *oleum morrhuæ;* for sleeplessness and restlessness, *morphina*, *potassii bromidum*, *chloral* or *hyoscyamia;* the dyspepsia, lung symptoms, etc., must be managed on general principles.

DIABETES INSIPIDUS.

Synonyms. Polyuria; polydipsia.

Definition. An affection characterized by the habitual discharge of a very large quantity of pale, watery urine, free from albumen and sugar.

Causes. Occasionally hereditary, or diabetes mellitus may have existed in the parent; more common in children or young adults; men are more liable than women; injuries and diseases of the nervous system; exposure to cold; drinking freely of cold water; fatigue; prolonged debility; malaria; syphilis.

The probable immediate cause of the excessive flow of urine consists in dilatation of the renal vessels, the result of paralysis of their mus-

cular coat, caused by derangement of innervation, as the condition can be induced experimentally by irritating a spot in the fourth ventricle, or by section of portions of the sympathetic nerve.

Symptoms. The affection is characterized by *great thirst*, with an increased flow of pale, watery, slightly acid urine, the amount varying from *one to five or six gallons* in the twenty-four hours. The *specific gravity* ranges from 1.001–1.007. *Sugar and albumen are absent.* Urea and the other solids are increased. The *appetite* is voracious, the *bowels* are obstinately constipated, and the *skin* is dry and harsh.

The large flow of urine is usually preceded by various nervous phenomena, as *nervousness, irritability, inability to concentrate the mind, vivid imagination, failure of memory, and headache.*

Unless the affection is soon arrested, great loss of flesh and strength result.

Diagnosis. It differs from *diabetes mellitus* by the absence of grape sugar in the urine.

From *paroxysmal diuresis*, by the absence of the increased urine permanently.

From *interstitial nephritis*, by the greater amount of urinary discharge and the absence of albumen, œdema, etc.

Prognosis. Rather unfavorable as to a radical cure, unless caused by syphilis. Death rarely is due to the diabetes, but to some intercurrent malady that the patient has been unable to withstand, on account of the weakness produced by the diabetes.

Treatment. If due to syphilis, *potassii iodidum* and *hydrargyrum* are of real benefit. Prof. DaCosta has had success with *ergota* in the form of the fluid extract or the aqueous extract. *Pilocarpus* has been used with success. Prof. Bartholow recommends *galvanism* in cases not cured by potassii iodidum, placing "one electrode to the neck below the occiput, the other to the hypochondriac regions in turn." *Valerian* and *potassii bromidum* have been used. The author has effected a cure in three cases, where other remedies had failed, by the use, internally, of—

℞. Strychninæ sulph..... gr. $\frac{1}{40}$
Acid. hydrochlor. dil..... ♏x
Aquæ lauro-cerasi..... ℥ij. M.
Well diluted.

The obstinate constipation is best overcome by *pilulæ cathartica compositæ*, one at bedtime.

CHOLERA.

Synonyms. Epidemic cholera; Asiatic cholera; malignant cholera; spasmodic cholera.

Definition. An acute, specific, infectious disease, epidemic in the majority of, although endemic in other, localities; characterized by the transudation of serum into the stomach and intestinal canal and violent purging of a peculiar, rice-water-like fluid, the persistent vomiting of a similar material, severe muscular cramps, and a condition of prostration, followed by collapse and death, or of a reaction from the collapse and the development of the typhoid state (*cholera typhoid*).

Causes. A *specific poison*, probably the "comma bacillus" of Koch. Cholera is but feebly *contagious*, in the usual acceptation of that word, but it is unquestionably *infectious*.

The evidence seems conclusive that the *cholera stools* are the main, if not the only, channel of infection, and that the great cause of the propagation of cholera is the contamination of the water used for drinking purposes with the stools. Milk may also be the vehicle by which it spreads. Little, if any, danger exists from being in the presence of the affected, although the emanations from the cholera excreta in the atmosphere may generate the disease if swallowed or inhaled. The dead bodies of cholera subjects apparently possess slight infective property, "the bacteria of decomposition" probably destroying the cholera germs. One attack does not afford protection against another.

The *period of incubation* is short, under a week, usually.

Pathological Anatomy. This is, as yet, far from satisfactory. The morbid appearances in the majority of cases of death from cholera may be thus summarized: The temperature generally rises after death, the body remaining warm for a considerable time. Rigor mortis rapidly ensues, the muscular contractions being often so powerful as to displace and distort the limbs. The skin is mottled and the body greatly shrunken. The blood is darker in color, thick, viscid, feebly coagulable, and slightly acid. The arteries are quite empty of blood, the veins, on the other hand, are distended. The organs are, as a rule, pale and shrunken.

The stomach and intestinal mucous membranes are congested, and present evidences of extravasations and ecchymoses, or are bleached and pale. The stomach and intestines usually contain a quantity of

whey-like material, having an alkaline reaction, as well as quantities of cast-off epithelium and the peculiar bacillus. It is thought by many that the stripping-off of the epithelium is a post-mortem phenomena. The Peyer's, solitary and Brunner's glands are usually enlarged and prominent, and occasionally evidences of ulceration are apparent in the solitary glands, and sections placed under the microscope showed the "comma bacillus." The villi of the mucous membrane, as well as the epithelium of the small intestines, are stripped off, leaving the basement membrane, for the most part, exposed. The *liver* is more or less advanced in fatty degeneration, presenting a somewhat mottled, yellowish discoloration. The *kidneys* are congested, the epithelium of the tubules granular and detached from the basement membrane, blocking up the tubes. Prof. Bartholow observed, in all of his autopsies, "considerable hyperæmia and dilatation of the vessels of the medulla oblongata. The constancy of this lesion would seem to indicate a relationship between congestion of the medulla and the cramps."

Symptoms. In accordance with the law of epidemic infectious diseases, the onset, course and character of the symptoms vary in different cases and at different periods in the same epidemic.

The disease may either set in suddenly in a patient previously in good health, or it may follow an attack of rather severe and persistent diarrhœa, with *pain, nausea, vomiting and depression.* Such are the cases termed *Cholerine*, the stools of which are infectious.

In a typical case there are three stages: *first*, diarrhœa; *second*, prostration; *third*, collapse, or, in favorable cases, reaction.

First Stage. Begins with *chilliness*, excessive *thirst*, coated tongue, unpleasant taste in the mouth, slight abdominal *pain*, and three or four copious, *watery*, yet fecal *stools* during the day, and a decided feeling of *weakness*, the stools rapidly becoming *whey-like*, easily voided, but with force, and only slight pain.

Second Stage. The *stools* rapidly increase in number, are voided with a rushing force, and consisting of many quarts of grayish, or whitish, *rice-water-like* fluid, accompanied with forcible *vomiting*, first of the contents of the stomach, mixed with more or less bilious matter, afterwards of the peculiar rice-water-like material; *thirst* becomes most intense, increasing or diminishing with the variations in the number of the vomit and stools; severe *muscular cramps* soon follow, most severe in the calves, although occurring in all parts of the body.

Third Stage. The stools, vomit and cramps continue. The appearance of the patient becomes frightful; the eyes are sunken and surrounded by blackish rings, the nose pinched and pointed, the cheeks hollow, and the lips blue (facies cholerica); the surface cold and moistened with a sticky perspiration; the skin of the hands and fingers have the sodden appearance of the "washerwoman who has washed all day," and if picked up in folds, the fold but slowly disappears. The *temperature* rapidly falls, the *pulse* becomes small and compressible, barely perceptible at the wrist, and the heart beats are scarcely recognizable. The *voice* is weak, husky and sepulchral (vox cholerica), the tongue is like ice, the *breath is cold* and *icy*, the *urine* markedly diminished and albuminous. The *mind* is not cloudy, but most patients are apathetic and indifferent to their danger. This, the *algid* state of cholera, or *cholera asphyxia*, usually terminates in death in from three to twelve, twenty-four or forty-eight-hours, but *reaction* may be established.

Stage of Reaction. The temperature of the body rises, the pulse gradually becomes fuller and stronger, the countenance becomes brighter, the stools less frequent and more fecal, the vomiting decreases, the thirst lessens, the urine increases in amount, but continues albuminous, the patient entering a slow convalescence, or *typhoid symptoms* develop, the so-called *cholera typhoid*, which prolongs the recovery for several weeks.

Convalescence is often prolonged and complicated by the development of severe bed sores, boils, bronchitis, pneumonia or parotiditis.

Sequelæ. Suppuration of the parotid gland; painful tetanic contraction of the flexor muscles of the limbs; abscesses or ulcers of the limbs; profuse sweats; roseola, erythema, urticaria, and rarely vesicular eruptions.

Diagnosis. The epidemic character, and rapid spreading, and great mortality of the affection prevents its being mistaken for any other disease, although isolated cases are often confounded with cholerine or with cholera morbus, the points of distinction being few, unless the "comma bacillus" only be found in the stools of true cholera.

Prognosis. Very unfavorable, the mortality ranging from twenty to eighty per cent. The last epidemic in this country was much milder than former ones. The prognosis is controlled by the general condition of the patient, the age, habits and the development of the

algid stage; the prognosis being more favorable in those cases which develop gradually than in those in which it reaches its acme at a single bound; the very young or very old, those addicted to the various excesses and surrounded by unfavorable hygienic conditions, are more apt to perish than are others.

Treatment. The success depends, to a great extent, upon its prompt and early treatment, for experience amply attests that the arrest of the disease in the diarrhœal stage is comparatively easy, and that in the stage of collapse its cure by any means whatever is altogether an exceptional occurrence; therefore, during the prevalence of cholera the mildest cases of diarrhœa ought to receive prompt treatment, for many cases have their beginning as a mild diarrhœa.

It must not be overlooked that intelligent nursing and regimen are equally as important as medical treatment.

First Stage. The remedy of all others is *opium* in some form, to which may be added, with benefit, *plumbi acetas*, in doses of gr. iij–v, repeated p. r. n., or *acidum sulphuricum dilutum* combined with *tinctura opii deodorata*, and at the same time applying *mustard* over the abdomen. Water and food should be used with great caution, but *ice* is indicated in unlimited amounts, and at times *iced dry champagne*. The patient must be kept quiet, in bed.

Second Stage. The *opium* treatment should be continued, together with the free use of *stimulants*. For the distressing vomiting, *ice*, iced *champagne*, *acidum carbolicum* or *acidum hydrocyanicum* may sometimes give relief.

Locally either continue the *mustard* application to the abdomen or the constant use of rubber bags filled with boiling water, or cold cloths.

For the *cramps*, hot water in bottles, hot irons or bricks applied over painful parts, or an ointment of chloroform or chloral, chloroform or ether inhalations, or the use of the following hypodermatic solution, strongly recommended by Prof. Bartholow:—

℞. Chloral..... ℥iij.
Morphinæ sulph..... gr. iv.
Aq. lauro-cerasi..... f℥j. M.
Sig.—Fifteen to thirty minims each injection.

For the collapse, heat to the surface and the free use of *stimulants*, or *spiritus frumenti*, or *spiritus vini gallici* hypodermatically, also

the hot, and, in some cases, the cold bath has been of advantage; the intravenous injection of saline fluids was unusually successful during the 1884 epidemic in France, and as the *modus operandi* becomes more perfect, its success will be the more marked.

If reaction occur, treat indications as they arise, and tonics, such as *ferrum, quinina* and *arsenicum*.

All the discharges from the patient should be thoroughly *disinfected* as soon as voided, and the stools and vomited material buried.

TRICHINOSIS.

Synonyms. Trichinæ; Trichina spiralis; "flesh-worm disease."

Definition. A typhoid condition, the result of the entrance of a parasite—the *Trichina spiralis*—into the intestinal canal, and their subsequent migration into the muscular structure; characterized by severe gastro-intestinal irritation, severe muscular soreness, and a low typhoid condition.

Cause. The *Trichina spiralis* are introduced into the human body by eating the infected hog's flesh either raw or but imperfectly cooked.

Description. The *parasite* is found in two forms, to wit: *intestinal trichina*, which is sexually mature, and *muscle trichina*, which is sexually immature.

The *intestinal trichina* is a small, hair-like worm, the male measuring $\frac{1}{18}$ of an inch, and the female $\frac{1}{8}$ of an inch in length; the head is smaller than the rest of the body; the tail of the male has a bi-lobed prominence, between the divisions of which the anal opening is placed, and from which a single spiculum can be protruded; the female has a blunt, rounded tail, the reproductive outlet being situated toward the anterior part of the body; the ova are very small, containing, embryos being produced viviparously at the rate of at least one hundred each week after the entrance of the female into the intestinal canal.

The *muscle trichina* develops its sexual apparatus after it has entered the intestinal canal of its host.

The viable embryos discharged from the female are in a state of motion, and at once migrate from the intestines to the muscular structure of the individual, and here set up inflammatory action, they becoming surrounded by a capsule or shell in which they are coiled.

After a time, in the muscle, the *trichina* undergoes a further change; lime salts being deposited in and about the capsule and in the parasite itself, when minute specks of lime are seen distributed throughout the muscular structure.

The development of the parasite from the period of impregnation up to the time of sexual maturity is, under favorable conditions, less than three weeks. Within two days from the ingestion of the infected pork occurs the maturation of the muscle larvæ; in six days more the birth of embryos occur, and in about two weeks the migrating progeny have arrived at their *habitat*, the muscular structure.

Symptoms. These depend upon the number of parasites in the infected food. According to Dr. Sutton, of Indiana, a piece of pork, the size of a cubic inch, contained eighty thousand trichinæ. There are *three stages* described, to wit: the *intestinal*, the *migration*, and the *encapsulation*.

Intestinal stage, a gastro-intestinal inflammation, with *nausea*, *vomiting*, and a *watery diarrhœa*, the severity depending upon the number of the parasites ingested.

Migration stage, a *typhoid-like fever*, *rapid*, *feeble pulse*, profuse *sweats*, intense *thirst*, dry tongue and lips, and *red*, *swollen face*, with *soreness* and *tenderness* of the *muscular structure*, increased by any muscular act. As a rule the mind is clear but decidedly *apathetic*.

Encapsulation Stage. If the number of parasites ingested have been few, recovery may occur in this stage, but if the number have been large, the gastro-enteritis, fever and muscular phenomena severe, the patient is in a critical condition, between twenty and fifty per cent. succumbing.

Diagnosis. Unless the physician has some intimation of the cause, cases are readily mistaken for either ordinary ileo-colitis or typhoid fever.

Prognosis. Depends upon the number of trichina in the pork eaten. Mortality between twenty and fifty per cent.

Treatment. If the parasites have been recently taken, within the first four or five days, *emetics* and *purgatives* to remove them from the stomach and intestinal canal are indicated. After thorough action of these, attempts may be made to destroy such of the parasites as have escaped the emetic or purgative. For this purpose

much is said in favor of *glycerini*, one part, aquæ, two parts; or a trial can be made of *acidum carbolicum* and *tinct. iodi*, as suggested by Prof. Bartholow. *Quinina* gave the best results in the cases seen by Dr. Sutton.

After *migration* has begun the powers of life must be sustained by nourishing food, stimulants and tonics.

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